EPA/AMD/R09-04/575
2004

EPA Superfund
Record of Decision Amendment:

TRACY DEFENSE DEPOT (USARMY)
EPA ID: CA4971520834
OU 01
TRACY, CA
06/21/2004

UNITED STATES ENVIRONMENTAL PROTECTION AGEMCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

June 21, 2004

Colonel Edward R. Visker, U.S. Army
Commander, Defense Distribution Depot San Joaquin California (DDJC)
U.S. Department of Defense, Defense Logistics Agency
DDJC-D, Building 100
P.O. BOX 960001
Stockton, CA 95296

Re: Final Amendment to the Sitewide Comprehensive Record of Decision, Defense Distribution Depot San Joaquin (DDJC), Tracy Site, Tracy, California, December 2003

Dear Colonel Visker:

The U.S. Environmental Protection Agency (EPA) Region 9 has received the Final Amendment to the Sitewide Comprehensive Record of Decision (ROD), Defense Distribution Depot San Joaquin (DDJC), Tracy Site, California, dated December 2003. The purpose of this ROD Amendment is to modify significantly the remedies for Solid Waste Management Unit (SWMU) 4 and for groundwater (designated as Operable Unit 1) originally specified in the DDJC-Tracy Sitewide Comprehensive ROD. This amendment also addresses the Defense Site Environmental Reporting and Tracking System (DSERTS) 72 site, which was discovered after the ROD was signed.

Regarding the groundwater, the ROD Amendment proposes to dispose of effluent from the groundwater treatment system via overland flow as a backup method of recharging the aquifer when re-injecting the effluent per the existing ROD is not feasible. The 1998 Sitewide Comprehensive ROD does not include RCRA Land Disposal Restrictions as ARARs because the remedy did not initially include disposal of effluent to land. However, the effluent is already subject to Waste Discharge Requirements (WDRs) specified in the ROD.

The WDRs specified in the ROD are more stringent than the RCRA Land Disposal Restrictions. Therefore, in order to comply with the substantive requirements of RCRA and avoid triggering RCRA ARARs, the DLA should ensure that chemical concentrations in the treatment system effluent continue to fall below the WDRs.

Enclosed is the signature page for the Final Amendment to the Sitewide Comprehensive ROD. If you have any questions, please contact Xuan-Mai Tran, Remedial Project Manager, at (415) 972-3002.

Sincerely,

Kathleen Johnson
Chief, Federal Facility and Site Cleanup Branch
Superfund Division

cc: (See Distribution List)

Enclosure

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DEFENSE LOGISTICS AGENCY
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IN REPLY
REFER TO DDJC-FA February 23, 2004

Mr. Marcus Pierce
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Central Valley Region, 3443 Routier Road, Suite A
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Mr. Peter MacNicholl
Califomia Department of Toxic Substances Control (CA DTSC)
Region 1, Site Mitigation Unit, 8800 Cal Center Drive
Sacramento, CA 95826-3200

Ms Xuan-Mai Tran, SFD-8-3 U. S. Environmental Protection Agency (U.S. EPA)
Region 9, 75 Hawthorne Street
San Francisco, CA 94105-3901

Dear Remedial Project Managers:

Defense Distribution Depot San Joaquin California (DDJC) is pleased to submit the signature page for DDJC Tracy Amendment to the Site-wide Comprehensive Record of Decision, final document dated December 2003, for signature by CA RWQCB, followed by CA DTSC, and then by U.S. EPA.

Request that CA RWQCB forward to CA DTSC, and that CA DTSC forward to U.S. EPA after the document is signed by your respective agency representative. After signature by U.S. EPA representative, request that U.S. EPA send sign copies be sent to agency representatives, and the distribution list.

If there are any questions, please contact Mr. Marshall Cloud, Environmental Protection Specialist at (209) 839-4067 or myself at (209) 839-4129.

Sincerely,

JOHN J. GUZMAN
Environmental Program Manager

Enclosure
cc:
Marshall Cloud, DDJC
Mike Thomas, URS
Steve Norhstedt, CEHNC
Paul Townsend, CESPK
Administrative Record

18600352.26010

FINAL

DEFENSE LOGISTICS AGENCY
DEFENSE DISTRIBUTION DEPOT SAN JOAQUIN CALIFORNIA
TRACY SITE, CALIFORNIA

AMENDMENT TO THE SITEWIDE COMPREHENSIVE RECORD OF DECISION
DDJC-TRACY

Prepared for:

U.S. Army Corps of Engineers
Engineering and Support Center, Huntsville
4820 University Square
Huntsville, Alabama 35816-1822
ATTN: CEHNC-IS-FS

Prepared by:

URS Group, Inc.
2870 Gateway Oaks Drive, Suite 300
Sacramento, California 95833

December 2003

URS

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LIST OF ACRONYMS AND ABBREVIATIONS

AR	Army Regulation
ARAR	applicable or relevant and appropriate requirement
AWQC	ambient water quality criteria
BERA	baseline ecological risk assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	contaminant of concern
COPC	chemical of potential concern
DCE	dichloroethene
DDD	4,4′-dichlorodiphenyldichloroethane
DDE	4,4′-dichlorodiphenyldichloroethene
DDJC	Defense Distribution Depot San Joaquin California
DDT	4,4′-dichlorodiphenyltrichloroethane
DDX	sum of the concentrations of DDD, DDE, and DDT
DI-WET	deionized water waste extraction test
DLA	Defense Logistics Agency
DoD	U.S. Department of Defense
DSERTS	Defense Site Environmental Reporting and Tracking System
DTSC	California Department of Toxic Substances Control
EBS	environmental baseline survey
ESD	explanation of significant differences
FFA	Federal Facilities Agreement
FOST	finding of suitability to transfer
gpm	gallons per minute
HI	hazard index
HQ	hazard quotient
IMP	installation master plan
IR	information repository
kg	kilogram (1×10^{3} grams)
LUC	land use control
MCL	maximum contaminant level
mg	milligram (1×10^{-3} grams)
mg/kg	milligrams per kilogram

LIST OF ACRONYMS AND ABBREVIATIONS (Continued)

NCP	National Oil and Hazardous Substance Pollution Contingency Plan (National Contingency Plan)
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
OU	operable unit
PCB	polychlorinated biphenyl
PCE	perchloroethylene (*synonym*: tetrachloroethene)
RI/FS	remedial investigation/feasibility study
ROD	record of decision
RWQCB	California Regional Water Quality Control Board
SARA	Superfund Amendment and Reauthorization Act
SWMU	solid waste management unit
TCE	trichloroethene
TPH	total petroleum hydrocarbons
TP-1	Groundwater Treatment Plant 1
TP-2	Groundwater Treatment Plant 2
U.S.	United States
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
U.S. EPA	U.S. Environmental Protection Agency
VOC	volatile organic compound
WDR	waste discharge requirement
µg/L	micrograms per liter

DECLARATION FOR THE AMENDMENT TO THE RECORD OF DECISION

D.1 Site Name and Location

Defense Depot San Joaquin California-Tracy site (DDJC-Tracy), Tracy, California.

D.2 Statement of Basis and Purpose

D.2.1 This decision document presents the agreed to amendments to selected remedial actions for specific sites at the DDJC-Tracy Depot. The amendments were developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA). The selected action is also in compliance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR Part 300) and Chapter 6.8 of the California Health and Safety Code (Section 25300 *et seq.*) The amendments of selected remedies are based on the administrative record for this site.

D.2.2 The U.S. Environmental Protection Agency (U.S. EPA) and the State of California concur on the selected remedies.

D.3 Assessment of the Site

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the changes described in this amendment to the record of decision (ROD), may present an imminent and substantial endangerment to public health, welfare, or the environment.

D.4 Description of the Remedy

The purpose of this ROD Amendment is to modify significantly the remedies for Solid Waste Management Unit (SWMU) 4 and for groundwater (designated as Operable Unit [OU] 1) originally specified in the *DDJC-Tracy Sitewide Comprehensive Record of Decision*. This amendment also addresses the Defense Site Environmental Reporting and Tracking System (DSERTS) 72 site, which was discovered after the ROD was signed.

D.5 Statutory Determinations

D.5.1 Considering existing and ongoing operations at DDJC-Tracy, new information developed since the signing of the original ROD, and changes proposed for the remedial alternatives at SWMU 4, OU 1, and DSERTS 72, the Defense Logistics Agency believes that the identified remedies remain protective of human health and the environment, comply with federal and state requirements, and are cost effective. In addition, the revised remedies use current, site-specific environmental data and analyses to the extent practicable for this facility.

D.5.2 This ROD Amendment amends the institutional controls identified for SWMU 4 and establishes land use controls for DSERTS 72. A forthcoming Explanation of Significant Differences (ESD), scheduled for finalization in 2004, will document institutional control requirements for other sites at DDJC-Tracy.

D.5.3 Five-year reviews will be conducted in accordance with CERCLA Section 121(c). The five-year review is required for sites with institutional controls that restrict use and for sites (i.e., groundwater) where cleanup standards will not be attained within five years. Five-year reviews will also be required for sites where contaminants remain in place, unless it can be shown that they pose no further threat to human health and the environment.

2.11.04

U.S. Department of Defense, Defense Logistics Agency — Date
Colonel Edward R. Visker, U. S. Army
Commander, Defense Distribution Depot San Joaquin California

5-20-04

Cal/EPA Department of Toxic Substances Control — Date
Anthony J. Landis, Chief
Northern California Operations, Office of Military Facilities

5-27-04

State of California Regional Water Quality Control Board — Date
Thomas R. Pinkos, Executive Officer
Central Valley Region

6/21/04

U.S. Environmental Protection Agency — Date
John Chesnutt, Acting Chief
Federal Facilities and Site Cleanup Branch

ES.0 EXECUTIVE SUMMARY

ES.0.1 The Defense Distribution Depot San Joaquin California Tracy Site (DDJC-Tracy) is located in an unincorporated area of San Joaquin County in the Central Valley of California. The Defense Logistics Agency has operated DDJC-Tracy since 1942 as a storage and distribution depot for the United States military services in the western U.S. and the Pacific region. The operating portion of the depot covers a 448-acre triangular parcel, and the Tracy Annex consists of 460 acres of agricultural land north of the operating portion.

ES.0.2 Historical operations at the facility have included the handling and use of potentially hazardous materials. To address contamination associated with past waste-management practices at the site, the *Sitewide Comprehensive Record of Decision* (ROD) (Radian International, 1998) was signed in April 1998. The ROD specifies remedies that are protective of human health and the environment, that comply with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and are cost effective.

ES.0.3 The purpose of this ROD Amendment is to modify significantly the remedies for Solid Waste Management Unit (SWMU) 4 and for groundwater (designated as Operable Unit [OU] 1) originally specified in the ROD. This report also addresses the Defense Site Environmental Reporting and Tracking System (DSERTS) 72 site, which was discovered after the ROD was signed.

ES.1 Basis for the ROD Amendment

ES.1.1 The basis for the ROD Amendment at SWMU 4, OU 1, and DSERTS 72 is explained below. The changes to the original remedies are described in Section ES.2.

- **SWMU 4** – The remedy is modified on the basis of additional risk assessment. The ROD noted that cleanup standards for DDX (a derived sum of the concentrations of 4,4′-dichlorodiphenyldichloroethane [DDD], 4,4′-dichlorodiphenyldichloroethene [DDE], and 4,4′-dichlorodiphenyltrichloroethane [DDT]), lead, and selenium were estimated using literature values, and that a more site-specific evaluation of the risk posed at the site was needed. The *Baseline Ecological Risk Assessment, SWMU 4* (URS, 2001a) was completed to obtain a better understanding of the potential for effects of contamination on ecological receptors at SWMU 4. The remedy is revised on the basis of the additional data resulting from this assessment.

- **OU 1 –** It has not been possible to implement fully the remedy for OU 1 groundwater as specified in the ROD because the capacity for subsurface discharge was significantly overestimated. The ROD specified that treated groundwater would be discharged to the subsurface. Although additional infiltration galleries and numerous injection wells have been installed at the site, it has not been possible to discharge sufficient quantities of water to operate the extraction wells properly to contain the groundwater contamination plumes. For this reason, other discharge options are necessary to supplement subsurface discharge.

- **DSERTS 72 –** The DSERTS 72 site was identified after the ROD was signed in 1998.

ES.1.2 This ROD Amendment documents changes to the selected remedial action for the DDJC-Tracy site developed in accordance with §117 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendment and Reauthorization Act (SARA). The modified remedies are also in compliance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), §300.435(c)(2)(ii), and Chapter 6.8 of the California Health and Safety Code, Section 25300, et seq. Further, these actions are being taken in response to the California Water Code (Section 13300, et seq.).

ES.2 Selected Remedies

This ROD Amendment for SWMU 4, OU 1, and DSERTS 72 provides a comparative analysis of remedial alternatives for each of these sites. The analysis is based on the analysis in the original ROD and on data collected since the original ROD was signed. Alternatives include a "No Action" alternative, in which current conditions are left unchanged, and alternatives that address potential engineering or institutional controls for managing chemical constituents in place. For each site, a specific remedy is recommended that will meet environmental management goals and comply with regulatory requirements.

ES.2.1 SWMU 4

The selected remedy for SWMU 4 has been modified to delete excavation. SWMU 4 is a stormwater detention pond that receives all stormwater runoff from DDJC-Tracy from a network of underground storm drains and open surface drainage ditches. Preliminary cleanup standards for excavation to protect ecological receptors were originally included in the ROD. But the ROD also recommended subsequent investigations, the results of which are presented in the *Baseline Ecological Risk Assessment* (URS, 2001a). The results indicate that there is no significant risk to the selected ecological receptors (the mallard duck and the great blue heron).

- Risks to mallard ducks were predicted only when exposures were compared against lower-bound toxicity values. Calculations showed there were no risks for mallard ducks exposed to selenium or other chemicals. Risk was predicted for mallard ducks exposed to lead, but there was no risk when the bioavailability of lead in flesh and sediment and the forage range were considered. Risk to the mallard duck was also predicted for DDX, but no risk was predicted for DDE, the toxic component of DDX. The estimated cumulative toxicity of DDE and lead was influenced solely by lead, but this became insignificant when the bioavailability of lead and the forage range of the mallard were considered.

- Risks to great blue herons were found only when exposures were compared against lower-bound toxicity values. No risks were predicted for great blue herons exposed to selenium or other chemicals. Risk was estimated for great blue herons exposed to lead, but there was no risk when the bioavailability of lead in flesh and sediment was considered. Risk to the great blue heron was also predicted for DDX, but risk was not predicted for DDE, the toxic component of DDX. The estimated cumulative toxicity of DDE and lead was influenced solely by lead, but this became insignificant when the bioavailability of lead was considered. The pond is dry in late summer, and fish were not found in the pond in April 2000, so the 100% usage estimates were far greater than could be expected to occur realistically.

ES.2.2 Operable Unit 1

Subsurface discharge of treated groundwater was the remedy specified in the ROD. The proposed modification to the remedy, described herein, is to add overland flow (surface discharge) as a supplemental discharge mechanism. Subsurface discharge is still preferred and will be used to the extent possible, but sufficient groundwater cannot be extracted to contain the groundwater contamination plumes using subsurface discharge as the sole discharge option. Use of both subsurface discharge and overland flow will enable flow at rates that improve plume capture and allow the remedy to meet the remedial action objectives specified in the ROD.

ES.2.3 DSERTS 72

For DSERTS 72, institutional controls in the form of land use controls (LUCs) are the selected remedy to prevent unacceptable risks to human health and the environment associated with contamination remaining at the site. The DSERTS 72 site is not a potential source of future groundwater contamination, and given the current and anticipated future industrial use of

the depot, the contaminants at DSERTS 72 do not pose an unacceptable risk to human health or the environment. Therefore, LUCs are an appropriate remedy for DSERTS 72.

ES.3 Land Use Controls

This ROD Amendment amends the institutional controls identified for SWMU 4 and establishes LUCs for DSERTS 72. A forthcoming Explanation of Significant Differences (ESD), scheduled for finalization in 2004, will document institutional control requirements for other sites at DDJC-Tracy.

ES.4 Statutory Determination

Considering existing and ongoing operations at DDJC-Tracy, new information developed since the signing of the original ROD, and changes proposed for the remedial alternatives at SWMU 4, OU 1, and DSERTS 72, the Defense Logistics Agency believes that the identified remedies remain protective of human health and the environment, comply with federal and state requirements, and are cost effective. In addition, the revised remedies use current, site-specific environmental data and analyses to the extent practicable for this facility.

ES.5 Public Participation

In accordance with U.S. EPA specifications listed under *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Documents* (U.S. EPA, 1999), a Proposed Plan documenting the changes enumerated in this Amendment to the DDJC-Tracy ROD was prepared. The Proposed Plan was submitted to the Community Relations staff and Remedial Project Managers of DDJC and the regulatory agencies in draft, draft final, and final versions prior to publication and presentation to the public. The Proposed Plan was presented at a public meeting in January 2002, and an extended public review and comment period were provided to obtain feedback from the neighboring community. The results of the public participation are included in Section 6.0 of this revised draft final ROD Amendment.

1.0 INTRODUCTION AND STATEMENT OF PURPOSE

1.0.1 The Defense Distribution Depot San Joaquin California Tracy Site (DDJC-Tracy) is located in an unincorporated area of San Joaquin County, 1.5 miles southeast of Tracy, California; it is approximately 20 miles southwest of Stockton, California, and 60 miles east of San Francisco, California (Figure 1-1).

1.0.2 The Defense Logistics Agency (DLA) has operated DDJC-Tracy since 1942 as a storage and distribution depot for the United States (U.S.) military services in the western U.S. and the Pacific region. In late 1992, the DLA purchased an agricultural area north of the operating portion of DDJC-Tracy, called the Tracy Annex. The operating portion of the depot covers a 448-acre triangular parcel, and the Tracy Annex consists of approximately 460 acres (Figure 1-2).

1.0.3 About 75% of the operating portion is covered with buildings (primarily warehouses), asphalt, or concrete. Numerous smaller buildings in the northwestern corner of the depot house administration and operations. A large stormwater detention pond and two sewage lagoons are also located in the northwestern portion of the depot. The stormwater detention pond receives runoff from the depot's storm drain system. The sewage lagoons receive treated wastewater from the depot's wastewater treatment plant. The only landscaped area is in the northwestern corner, near Building 100. All other unpaved surfaces contain weeds and grass; historically, these have been removed regularly with herbicides (types and quantities were not recorded) and/or by grading.

1.0.4 Historical operations at the facility have included the handling and use of potentially hazardous materials. To address contamination associated with past waste management practices at the site, the *Sitewide Comprehensive Record of Decision* (ROD) (Radian International, 1998) was signed in April 1998. The ROD specifies remedies that are protective of human health and the environment, that comply with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and are cost effective.

1.0.5 The purpose of this ROD Amendment is to modify significantly the remedies for Solid Waste Management Unit (SWMU) 4 and for groundwater (designated as Operable Unit [OU] 1) originally specified in the ROD. This amendment also addresses the Defense Site Environmental Reporting and Tracking System (DSERTS) 72 site, which was discovered after the ROD was signed.

1.1 History of Remedial Activities

1.1.1 In early 1980, a records search by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) identified several waste sites (SWMUs) at DDJC-Tracy with contaminants that could migrate to off-depot locations. This study concluded that waste disposal practices between 1940 and the mid-1970s—including the use of burning to dispose of wastes, operation of underground sumps/tanks, and use of unlined drainage and sewage leaching ponds—probably were responsible for the reported contamination (USATHAMA, 1980).

1.1.2 As a result of continuing investigations, DDJC-Tracy was listed on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priorities List (NPL) as a Superfund site in 1991. On 27 June 1991, DDJC-Tracy, the U.S. Environmental Protection Agency (U.S. EPA) Region IX, and the California Department of Toxic Substances Control (DTSC) signed a Federal Facilities Agreement (FFA) for DDJC-Tracy (U.S. EPA, 1991). This FFA has enforceable schedules; it ensures that environmental impacts are thoroughly investigated and that appropriate cleanup actions are taken to protect human health, welfare, and the environment. Consistent with the requirements of the FFA, the U.S. EPA, DTSC, and the California Regional Water Quality Control Board (RWQCB) provide regulatory oversight, including technical support, review, and comment on all investigative and cleanup work at DDJC-Tracy.

1.1.3 Following the signing of the FFA, contaminated groundwater was identified as the "principal threat" at the site, and actions to address contaminated groundwater were given priority. The final OU 1 ROD (Woodward-Clyde Consultants, 1993) was signed in August 1993; it required groundwater extraction and treatment as the remedy for OU 1.

1.1.4 Determination of the focused remedy for groundwater was followed by a Comprehensive Remedial Investigation/Feasibility Study (RI/FS) (Montgomery Watson, 1997a) to more thoroughly evaluate the contamination associated with OU 1 and to address the areas of soil contamination that were not addressed as part of the OU 1 ROD. The RI/FS report includes an evaluation of possible remedies for those sites identified as posing a threat to human health or the environment. A proposed plan for the Sitewide Comprehensive ROD was then prepared for public review (Montgomery Watson, 1997c). The plan described recommended remedies for those sites identified as posing a threat to human health or the environment, provided information to the public about the actions planned at these sites, and encouraged public input prior to making final decisions.

1.1.5 Following the public comment period of the proposed plan, the *Sitewide Comprehensive Record of Decision* (Radian International, 1998) was developed and finalized (April 1998) in accordance with applicable federal and state laws, regulations, and codes.

1.2 Basis for the ROD Amendment

1.2.1 The basis for the ROD Amendment at SWMU 4, OU 1, and DSERTS 72 is explained below. The changes to the remedies in the original RODs are described in Sections 2.0, 3.0, and 4.0.

- **SWMU 4 —** The remedy is modified on the basis of additional risk assessment. The ROD noted that cleanup standards for DDX (a derived sum of the concentrations of 4,4′-dichlorodiphenyldichloroethane [DDD], 4,4′-dichlorodiphenyldichloroethene [DDE], and 4,4′-dichlorodiphenyltrichloroethane [DDT]), lead, and selenium were estimated using literature values, and that a more site-specific evaluation of the risk posed at the site was needed. The *Baseline Ecological Risk Assessment* (BERA) (URS, 2001a) was completed to obtain a better understanding of the potential for effects of contamination on ecological receptors at SWMU 4. The remedy is revised based on the additional data received from this assessment.

- **OU 1 —** It has not been possible to implement fully the remedy for OU 1 groundwater as specified in the ROD because the capacity for subsurface discharge was significantly overestimated. The ROD specifies that treated groundwater would be discharged to the subsurface. Although additional infiltration galleries and numerous injection wells have been installed at the site, it has not been possible to discharge sufficient quantities of water to operate the extraction wells properly to contain the groundwater contamination plumes. For this reason, other discharge options are necessary to supplement subsurface discharge.

- **DSERTS 72 —** The DSERTS 72 site was identified after the ROD was signed in 1998.

1.2.2 This ROD Amendment documents changes to the selected remedial action for the DDJC-Tracy site developed in accordance with §117 of CERCLA, as amended by the Superfund Amendment and Reauthorization Act (SARA). The modified remedies are also in compliance with the National Oil and Hazardous Substances Pollution Contingency Plan, referred to as the National Contingency Plan (NCP), §300.435(c)(2)(ii), and Chapter 6.8 of the California Health and Safety Code, Section 25300, et seq. Further, these actions are being taken in response to the California Water Code (Section 13300, et seq.).

1.3 Administrative Record

This ROD Amendment for SWMU 4, OU 1, and DSERTS 72 will become part of the Administrative Record file (NCP 300.825 (a)(9)(2)). This

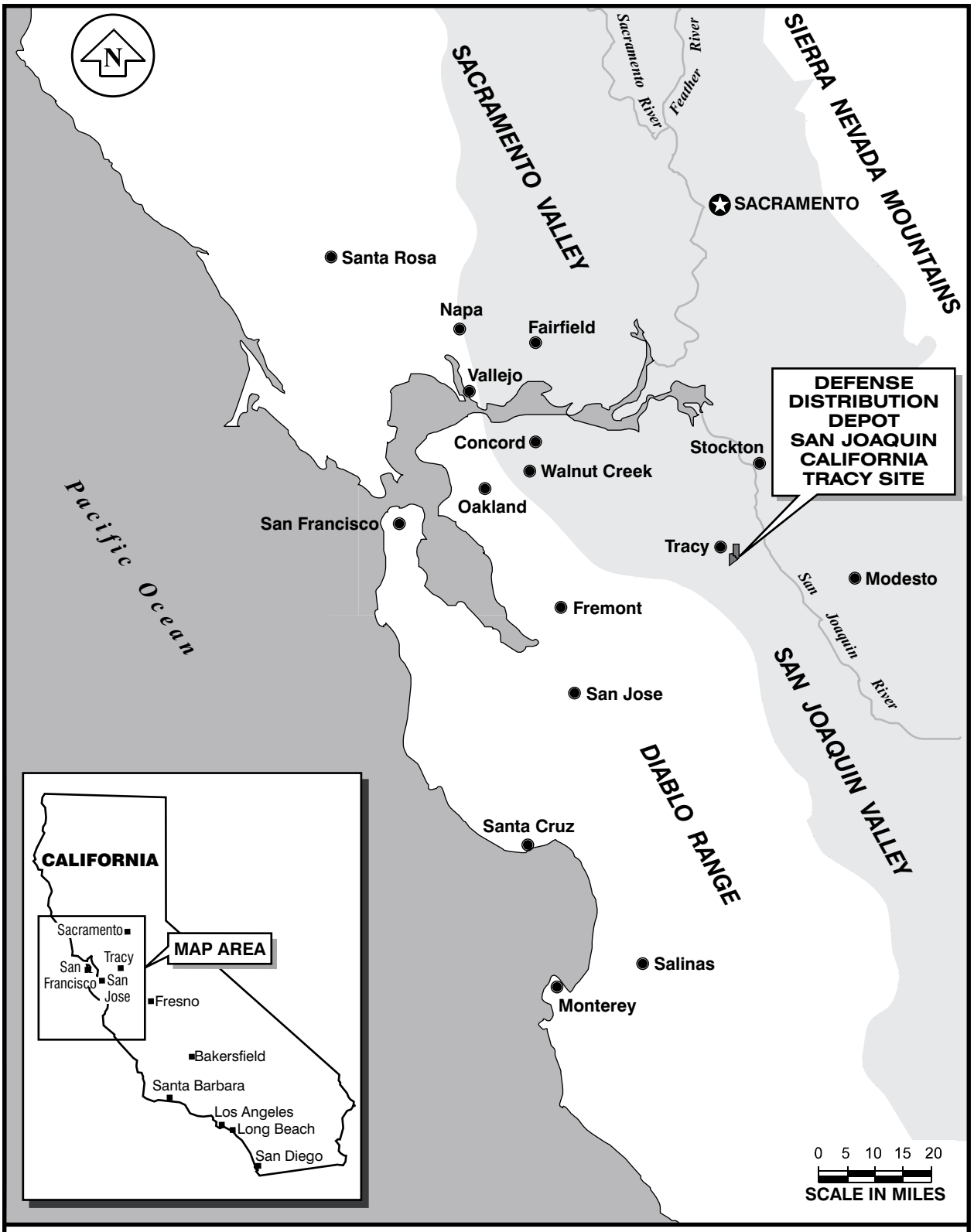

Figure 1-1. Location of DDJC-Tracy

Tracy\tracy-dsert72-loc-map.cdr - LCT 12.22.03 SAC

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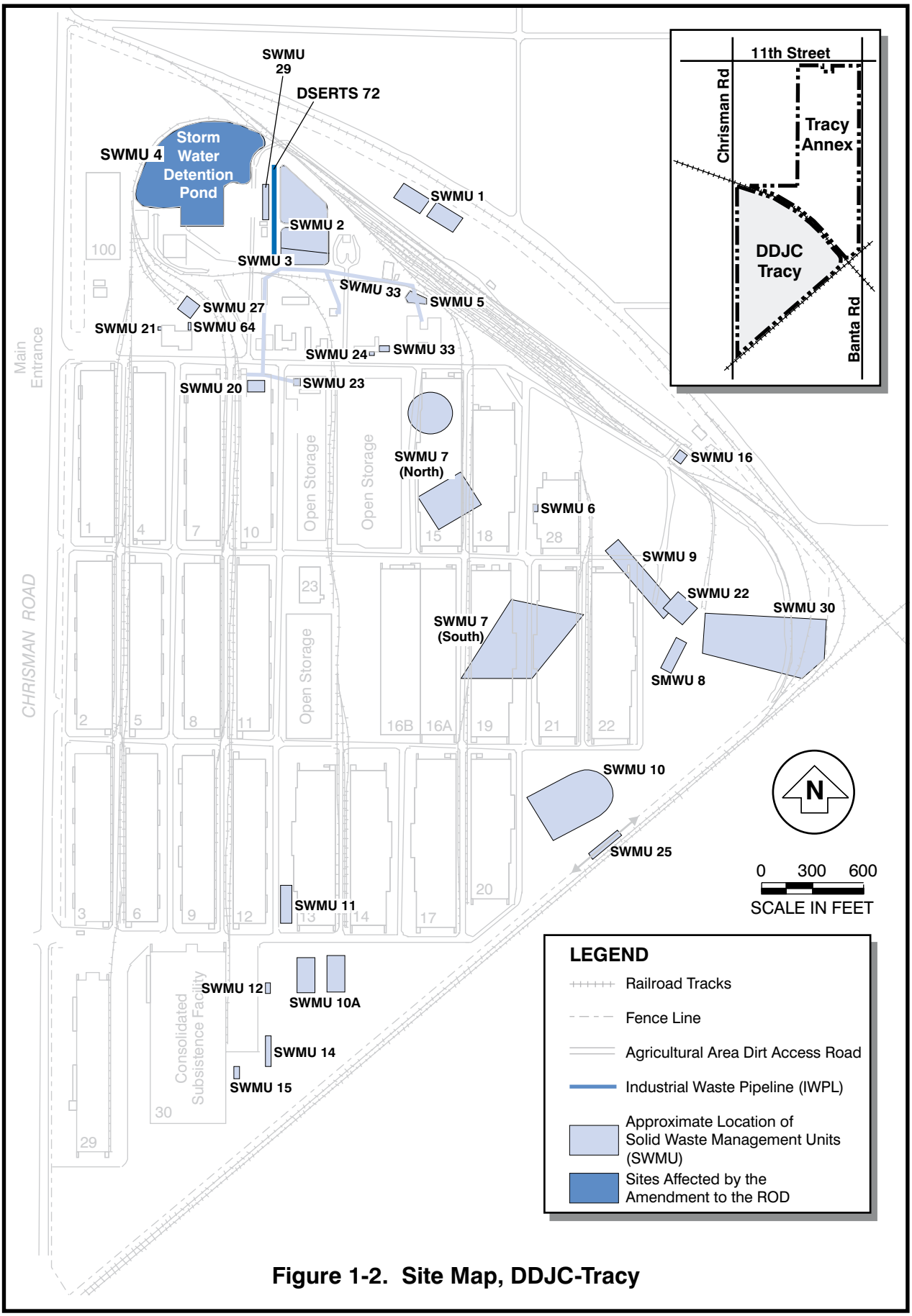

Figure 1-2. Site Map, DDJC-Tracy

Tracy\Amendment to Sitewide Comp ROD\08-03-SWMU-locations.CDR - LCT 12.22.03 SAC 1

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file is available to the public at two locations. DDJC-Tracy, Building 100, Room 2, contains documents that have been issued within the past two years. DDJC-Tracy, Warehouse 1, Section 1, contains documents that are older than two years. The Administrative Record is available between the hours of 7 a.m. and 3 p.m. To arrange to view the Administrative Record, a visitor should call (209) 839-4065.

2.0 SWMU 4

2.0.1 SWMU 4 is an unlined stormwater detention pond at the northwestern tip of the DDJC-Tracy site (Figure 2-1). Stormwater has been discharged to the detention pond since 1971 through a network of underground storm drains and open surface drainage ditches. The detention pond is bounded by earthen berms approximately 12 feet high and receives runoff through inlets in the southern and eastern portions of the pond. The pond reportedly received rinse water from former paint stripping, degreasing, and steam-cleaning operations. Selenium, lead, DDT, DDE, and DDD have been found in the pond sediment and were identified as contaminants of concern (COCs) in the ROD. The site was identified as potential habitat for wildlife in the *Comprehensive Sitewide Baseline Risk Assessment* (Montgomery Watson, 1997b).

2.0.2 Some of the water in the pond may be discharged to the West Side Irrigation Ditch during the wet season if the pond is more than half full. During the summer, the water in the pond percolates or evaporates, and the pond dries up completely. The pond sediment has been scraped at least once in the past 20 years.

2.1 Site History, Contamination, and Selected Remedy

2.1.1 Site characterization investigations at SWMU 4, which began with the comprehensive RI/FS (Montgomery Watson, 1997a), were completed in 2001. The ROD includes a selected remedy for SWMU 4, but also identified areas of uncertainty (data gaps) (Radian International, 1998). Subsequent investigations to address those data gaps resulted in the development of a BERA (URS, 2001a).

2.1.2 The remedy for SWMU 4 identified in the ROD includes:

- Continued groundwater monitoring;
- Installation of an overflow weir to prevent contaminated sediment from being discharged from the pond;
- Excavation of contaminated sediments that pose a risk to ecological receptors;
- The installation of a sediment trap; and
- Stormwater monitoring to ensure the overflow weir and sediment trap are effective.

2.1.3 The excavation portion of the remedy was developed to address lead, selenium, polychlorinated biphenyls (PCBs), DDD, DDE, and DDT, which pose a potential threat to ecological receptors. (Excavation was not deemed necessary to protect human health or water quality. The risk to human health was not considered significant under either the depot worker or construction worker scenario. Paragraphs 9.7.1.9 and 9.7.1.10 of the ROD indicate that cleanup standards to protect groundwater quality are not warranted at SWMU 4 [Radian International, 1998]).

2.1.4 Sediment cleanup standards for the excavation remedy at SWMU 4 were developed from the results of a screening-level ecological assessment. The sediment cleanup standards presented in the ROD are listed in Table 2-1. In addition to these cleanup standards, the RI/FS report identifies potential risk to ecological receptors from PCBs (Montgomery Watson, 1997a).

Table 2-1. ROD-Designated Sediment Cleanup Standards for SWMU 4

Analyte	Standard (mg/kg)
DDX	0.241
Lead	5.13
Selenium	0.616

DDD = dichlorodiphenyldichloroethene
DDE = dichlorodiphenyldichloroethane
DDT = dichlorodiphenyltrichloroethene
DDX = The sum of the concentrations of DDD, DDE, and DDT.
mg/kg = milligrams per kilogram

2.1.5 Cleanup standards for DDX, lead, and selenium are ecological-risk-based concentrations (see Paragraph 6.6.5.4 of the ROD), but they were estimated using literature values rather

than site-specific bioaccumulation factors. Paragraph 9.7.1.12 of the ROD acknowledges that the data available to develop cleanup standards were limited at the time of the ROD, and that additional data would be collected to obtain site-specific bioaccumulation factors. The ROD states that "cleanup standards and the extent of excavation will be evaluated and revised as jointly determined by DDJC-Tracy and the agencies. Any modification of the cleanup standards will be made through an ESD to this ROD." However, the new proposed remedy for SWMU 4 (presented herein) represents a fundamental change to the remedy presented in the ROD. Fundamental changes are documented in a ROD Amendment, not an ESD (U.S. EPA, 1999).

2.2 Basis for Change

2.2.1 The data collected for the RI were used to characterize concentrations of contaminants of potential concern (COPCs) in sediment at SWMU 4; the maximum concentrations reported were 0.158 milligram (mg) DDT/kg sediment, 0.815 mg DDE/kg sediment, 2.31 DDD/kg sediment, and 193 mg lead/kg sediment (Montgomery Watson, 1997b). These site-specific sediment data were utilized, in conjunction with literature-based data for ecological receptors, to develop the sediment-cleanup standards presented in the ROD (0.241 mg/kg for DDX and 5.13 mg/kg for lead). These preliminary sediment cleanup standards correspond to sediment concentrations at which the hazard quotient (HQ) equals one.[1] At the time of publication, it was acknowledged in the ROD that there were limitations to the data used to develop the cleanup standards.

2.2.2 A BERA for SWMU 4 was completed to address the data gaps identified in the ROD (URS, 2001a). Additional data were collected to further characterize the concentrations of COPCs in sediment, provide site-specific data for characterizing the concentrations of COPCs in elements of the food-web (aquatic invertebrates, plants, and fish), and to better evaluate the effects of COCs on ecological receptors.

2.2.3 The RI and BERA data were combined to better characterize the concentrations of COPCs in sediment. None of the COPC concentrations in sediment samples collected for the BERA were greater than the maximum concentrations reported in the RI, so the maximum concentrations used in the BERA were the same as used in the RI risk assessment. In addition, the BERA also incorporated the site-specific data for food-web elements (aquatic invertebrates, plants, and fish).

2.2.4 The BERA evaluated risks to mallard ducks and great blue herons potentially exposed to PCB congeners, DDX, lead, and selenium at SWMU 4. Risks were evaluated using concentrations that represented central tendency "average" exposures as well as maximum concentrations to represent upper-bound exposures.

- **Risks to Mallard Ducks:** Risks were predicted only when exposures were compared against lower-bound toxicity values. Calculations showed that there were no risks for mallard ducks exposed to selenium or PCB congeners (all HQs were <1). Potential risk was predicted for mallard ducks exposed to lead (HQ = 48 for central tendency exposures, HQ = 127 at maximum) based on the low TRV, which was developed from studies on one of the most bioavailable forms of lead (lead acetate). This form of lead is not expected to be present in natural food sources. The risk from lead was no longer significant (HQ > 1) when a more realistic estimate of lead bioavailability and foraging behavior of mallards (i.e., area use factor) was considered jointly (HQs < 0.11). Potential risk to the mallard duck was also predicted from DDX (HQs = 3.2 to 5), but no risk was predicted for DDE, which is typically the most toxic component of DDX

[1] Hazard quotients are the ratio of the exposure concentration to the toxicity concentration. An HQ value of one represents a threshold for indicating potential risk to ecological receptors: for screening purposes, HQs >1 indicate exposure is greater than the toxicity concentration, i.e., a risk to ecological receptors, whereas HQs <1 indicate no risk to ecological receptors.

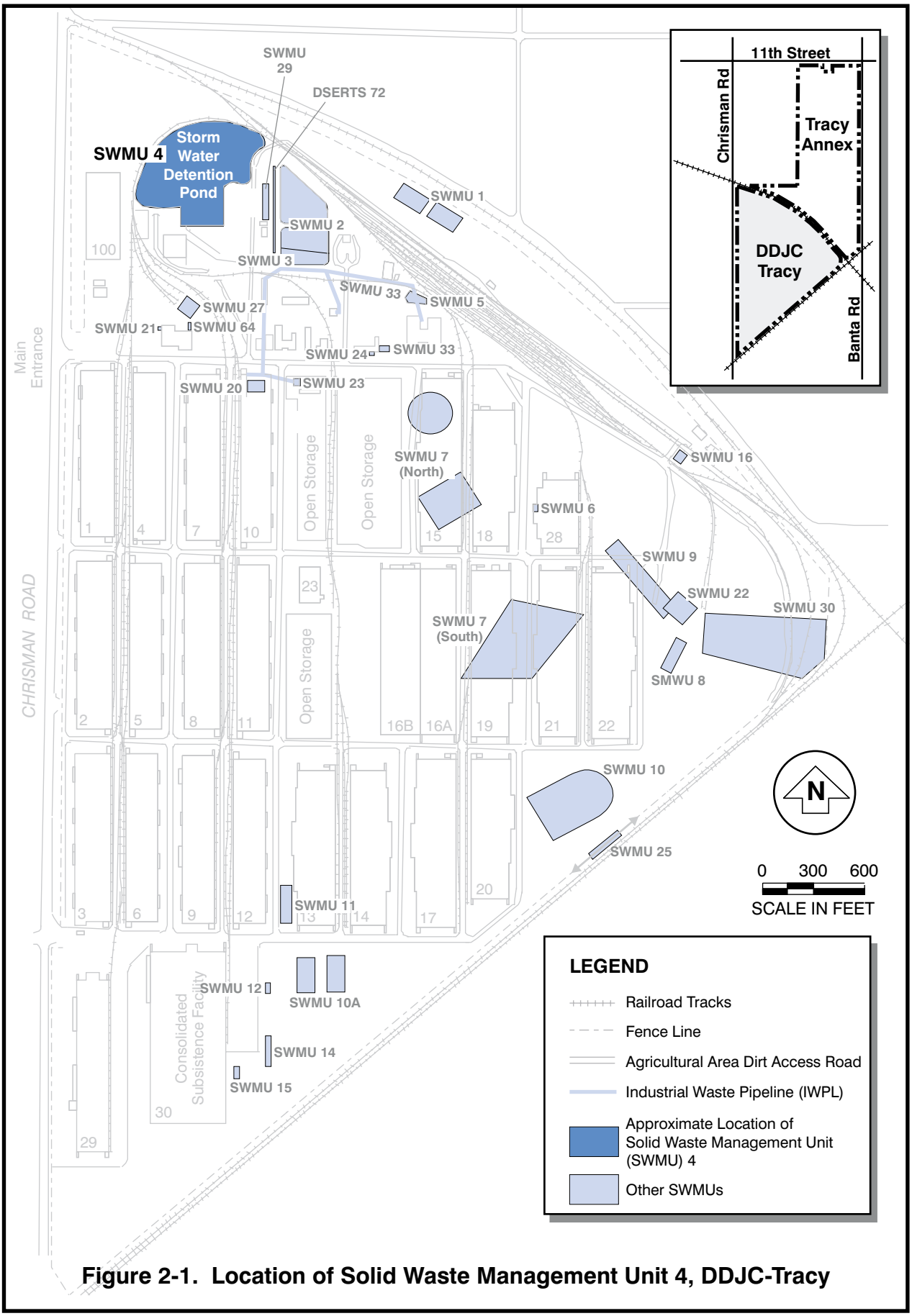

Figure 2-1. Location of Solid Waste Management Unit 4, DDJC-Tracy

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for birds (DDE HQs = 0.08 to 0.12). The estimated cumulative toxicities of DDE and lead (HQs = 48.5 to 127) were influenced solely by lead when the low TRV was used without consideration of site-specific factors (i.e., bioavailability and foraging behavior). The risks from the cumulative toxicity of DDE and lead also became insignificant (HQs < 0.11) upon the incorporation of these site- and receptor-specific parameters.

- **Risks to Great Blue Heron:** Risks were found only when exposures were compared against lower-bound toxicity values. No risks were predicted for great blue herons exposed to selenium or PCB congeners (all HQs were <1). Risk was estimated for great blue herons exposed to lead based on the low TRV (HQs = 13 to 21), but there was no risk when the actual bioavailability of lead in dietary items was considered (HQs < 0.09). Risk to the great blue heron was also predicted for DDX (HQs = 30 to 31), but risk was not predicted for DDE, the most toxic component of DDX for birds (DDE HQs = 0.9 to 0.94). The estimated cumulative toxicities of DDE and lead (HQs = 14 to 22) were influenced solely by lead. The risks from the cumulative toxicities of DDE and lead became insignificant when the bioavailability of lead was considered (HQs <0.09). The pond is dry in late summer, and fish were not found in the pond in April 2000, so the 100% usage estimates were greater than could be expected to occur realistically.

2.2.5 This ROD Amendment fundamentally modifies the selected remedy for SWMU 4 based on the current understanding of ecological risks potentially present at the site.

2.3 Description of Remedial Alternatives

2.3.1 One component of remedial investigations is the evaluation of the overall protection of the environment. At SWMU 4, the original ROD (Radian International, 1998) designated several remedial action objectives:

- Prevent the release from sediment of COCs that could cause surface water concentrations to exceed Federal Ambient Water Quality Criteria (AWQC) for the protection of aquatic life;

- Prevent ecological receptors from being exposed to COCs above aquatic standards for surface water; and

- Prevent ecological receptors from being exposed to COCs in sediment.

2.3.2 The first two remedial action objectives are unchanged. These remedial action objectives form the basis for considering what remedial actions might be effective. The BERA concluded that the COCs in sediment do not pose an unacceptable risk to ecological receptors.

2.3.3 The ROD identified the following three remedial alternatives:

- Alternative 1 – No Action;

- Alternative 2 – Upstream Source Control; and

- Alternative 3 – Limited Excavation, Overflow Weir, Sediment Trap, and Stormwater Monitoring.

2.3.4 Alternative 1 (No Action) does not meet the first two remedial action objectives and was given a low ranking in the ROD for several of the nine evaluation criteria. Alternative 2 (Upstream Source Control) also fails to meet the first two remedial action objectives and probably would not contribute significantly to the long-term effectiveness of the remedy. Alternative 3 (Limited Excavation, Overflow Weir, Sediment Trap, and Stormwater Monitoring) meets the remedial action objectives; however, with the results of the BERA (URS, 2001a), some of the assumptions in the ROD have been determined to be very conservative. To protect ecological receptors, it is not necessary to excavate sediment to meet the lead, selenium, and DDX cleanup standards. As a result, a modified version of Alternative 3, designated Alternative

3a, has been developed. This alternative has the following components:

- Continued groundwater monitoring;
- Institutional controls (as land use controls [LUCs]);
- Installation of an overflow weir to prevent contaminated sediment from being discharged from the pond;
- Installation of a sediment trap (the overflow weir has been designed to enable the pond to function as a sediment trap); and
- Stormwater monitoring to ensure the overflow weir and sediment trap are effective.

2.3.5 Alternative 3a has all of the components of Alternative 3 except excavation (no excavation cleanup standards for lead, selenium, or DDX are required). The effectiveness of Alternative 3a will be evaluated (in part by sediment sampling) in the five-year review process and annual inspections of the LUC area.

2.3.6 LUCs are amended under Alternative 3a as part of the selected remedy at SWMU 4. LUCs are required because the selected remedial action allows residual soil contamination to be left in place at levels that permit industrial land uses, but exceed levels that would allow for unrestricted reuse, including residential development. The remedial action objective of LUCs is to prohibit residential use of the property, including use for day care. LUCs consist of administrative measures selected by the DLA to limit exposure to residual hazardous substances. These measures restrict future land use and ensure the effectiveness of the remedy. The DLA will implement the following as performance measures:

- Include in an addendum to the Installation Master Plan (IMP) any specific controls required. Controls are required because of the presence of pollutants or contaminants, the current land users and uses of the site, the geographic control boundaries, and the objectives of the controls. The IMP Addendum will reflect the applicable controls restricting the site from use for residential development, play areas, or day care facilities. The section describing the specific controls will also refer the reader to the DDJC-Tracy Environmental Project Manager if more information is needed. The IMP Addendum will contain a map indicating areas where contaminated soil is located and the LUCs in effect for SWMU 4.
- Notify the regulatory agencies of any DDJC-Tracy proposals for a major land use change at a site inconsistent with the controls and assumptions described herein; any anticipated action that may disrupt the effectiveness of the LUCs; any action that might alter or negate the need for the LUCs; or any anticipated transfer of the property subject to the LUCs.
- Maintain existing administrative controls (IMP Addendum and notification procedures) while LUCs are in place (URS, draft ESD, 2003).
- Conduct annual monitoring and take prompt action to restore, repair, or correct any deficiencies or failures identified with the LUCs. A different monitoring schedule may be agreed upon according to the schedule provisions of the FFA if all parties agree and if the change reasonably reflects the risk presented by the site. Monitoring will include updating a list of personnel responsible for LUCs, contacting these personnel to ensure they have access to the IMP Addendum, documenting that no change in land use has occurred, and contacting all parties to the FFA agreement if the monitoring effort discovers a change in land use.

2.3.7 The DLA is responsible for implementing, monitoring, maintaining, and enforcing the identified controls. U.S. EPA, DTSC, and the CVRWQCB also monitor activities at LUC sites to ensure that LUC requirements are met. If the

DLA determines that it cannot meet specific LUC requirements, it is understood that the remedy may be reconsidered and that additional measures may be required to ensure the protection of human health and the environment. In addition, to assure the regulatory agencies and the public that the DLA will fully comply with and be accountable for the performance measures identified herein, it will submit in a timely manner to U.S. EPA and the State of California an annual monitoring report on the status of LUCs and/or other remedial actions, including the operation and maintenance and monitoring thereof, and how any LUC deficiencies or inconsistent uses have been addressed. Beginning in 2004, the report will be included as a section in the DDJC-Tracy Well Monitoring Program Annual Monitoring Report, and will be filed in the Information Repository (IR). The LUC section of this report would not be subject to approval and/or revision by U.S. EPA and the State of California.

2.3.8 The first step in restricting specific types of development at a site is to write an addendum to the DDJC-Tracy IMP to place constraints ensuring that these sites will not be used for specific types of land use, such as residential development or day care facilities. The IMP implements zone-like requirements at DDJC-Tracy. DLA installations require this comprehensive planning document for the establishment and maintenance of the institutional and engineering controls. The IMP resides in the office of the DDJC-Tracy Facility Engineer. DDJC-Tracy will write an addendum to the IMP to establish the constraints against residential development at SWMU 4. The addendum to the IMP will include a map showing the location of the LUCs areas at which specific development is prohibited. DDJC-Tracy will enforce these constraints on specific development through administrative review procedures already in place.

2.3.9 The IMP Project Approval Form is used to begin the administrative revision process (if a property transfer or lease is considered, then an environmental assessment and finding of suitability to transfer or finding of suitability to lease is also required) (URS, ESD, 2003). This form must be filed and approved before the start of any building project at DDJC-Tracy. The approval of the IMP Project Approval Form requires a comparison of the building site with the constraints outlined in the IMP Addendum, and notification of the proposed activities to all signatories to the ROD. The IMP Project Approval Form serves as the document for communicating any construction constraints to the appropriate offices. Any components of the proposed project that are inconsistent with the constraints at the site will result in the disapproval of the project unless the requestor makes appropriate modifications to the building plans. The DDJC-Tracy Facility Engineer is responsible for the final approval of building projects through this review process.

2.4 Re-Evaluation of Remedial Alternatives

Additional data have been collected from SWMU 4, and new analyses have been developed since the original ROD was published. These data and the subsequent BERA support a decision to re-evaluate the remedial alternatives from the original ROD. Alternatives 3 and 3a are considered in the following analysis of remedial alternatives. Remedial alternatives are evaluated in the context of the nine criteria specified in the NCP.

2.4.1 Overall Protection of Human Health and the Environment

2.4.1.1 Alternatives 3 and 3a are considered protective of human health. The risk to human health is below the CERCLA criterion for remediation, given the current land use and the expectation for continuation of that land use. The *Explanation of Significant Differences to the Selected Remedies in the ROD* (Radian International, 2001) identifies the requirements for changes in land use that would apply to Alternatives 3 and 3a for SWMU 4.

2.4.1.2 The ROD indicates that excavation probably would be required to protect ecological receptors. This conclusion was the result of

assumptions made in the screening-level risk assessment performed for the ROD. The collection of additional data and the conclusions of the BERA indicate that current conditions at SWMU 4 do not pose a significant risk to ecological receptors that might forage in the stormwater detention pond. Both alternatives under consideration require (1) monitoring of the stormwater discharged to the West Side Irrigation Canal to determine compliance with AWQC and (2) the installation of an overflow weir (allowing the pond to function as a sediment trap) to minimize impacts to the quality of discharged water. Therefore, both alternatives are considered equally protective of ecological receptors.

2.4.2 Compliance with ARARs

Federal AWQC for the protection of aquatic wildlife are considered chemical-specific ARARs (applicable or relevant and appropriate requirements) for surface water discharged to the local irrigation canal. Monitoring of discharged water would be required for both alternatives to assess compliance with this ARAR. The action-specific ARARs for hazardous waste management (22 California Code of Regulations, Division 4, Chapter 30, Section 67391.1, 22 California Code of Regulations, Division 4, Chapter 30, Section 66001, et seq., and 40 Code of Federal Regulations [CFR] 262, 263, and 264) would also have to be met for Alternative 3. The California Fish and Game Code is a location-specific ARAR.

2.4.3 Long-Term Effectiveness

Both alternatives include long-term monitoring of groundwater and an evaluation of water discharged from the pond to assess the effectiveness of the remedy. Both remedies also include an overflow-weir/sediment-trap to provide additional safeguards against the discharge of contaminated sediment. The long-term effectiveness would be further assessed in the five-year review to verify that there is no continuing source of groundwater contamination. The importance of assessing sediment concentrations in the five-year review is more critical to the long-term effectiveness of Alternative 3a because none of the existing sediment would be removed (residual concentrations could therefore be expected to be higher at the five-year review). Either remedy should be re-evaluated in the event land use changes, but the DLA has no foreseeable plans to change land use at DDJC-Tracy.

2.4.4 Reduction of Toxicity, Mobility, or Volume through Treatment

Neither Alternative 3 nor 3a includes treatment; however, the excavation in Alternative 3 would reduce the volume of contamination (approximately 7,000 to 11,000 cubic yards would require excavation). Because the BERA concluded that the sediment did not pose a significant risk to ecological receptors, negligible incremental reduction of toxicity and volume is associated with the excavation required in Alternative 3. Higher residual concentrations would remain under Alternative 3a, but these concentrations still do not pose a significant risk to human health or the environment.

2.4.5 Short-Term Effectiveness

Remediation workers are not expected to be exposed to significant risk from contaminated sediments during excavation under Alternative 3. However, monitoring could be performed to minimize any risks. Sediment excavation activities would impact the nesting and breeding habitats of various waterfowl by disturbing the shoreline and shallow water if activities were conducted during the spring or early summer. In addition, excavation of the lagoon would alter its ecological character for several years (in the absence of ecological restoration) until ecological succession returned the pond to a more natural condition. Therefore, Alternative 3a (no excavation) would provide higher short-term effectiveness in this regard because temporary habitat losses would not be created through this option.

2.4.6 Implementability

Alternative 3 (excavation) might be difficult to implement given the problems with draining the lagoon and a high water table. Alternative 3a (no excavation) would be much easier to implement.

2.4.7 Cost

2.4.7.1 In Appendix A, Tables A-1 and A-2 show modified costs for Alternatives 3 and 3a, respectively. The cost for Alternative 3 has been modified based on the additional sediment data collected as part of the BERA. These results indicate that ecological risks originally identified for SWMU 4 in the ROD are actually lower in magnitude, but the vertical extent of contamination is greater than initially predicted. Therefore, a deeper excavation than was previously anticipated would be required to significantly reduce the contaminant levels. Increasing project costs associated with a deeper excavation along with the findings of the BERA are the primary drivers for the re-evaluation of the remedy in this ROD Amendment.

2.4.7.2 The present worth for Alternative 3 (excavation), which includes excavation of lagoon sediment with dewatering and off-site disposal, is approximately $1,791,263. Alternative 3a has a significantly lower cost ($108,552).

2.4.8 State and Community Acceptance

When considering the BERA results, the State of California is expected to accept either Alternative 3 or Alternative 3a. Although COCs are present in the environment, their presence is not expected to pose an unacceptable risk to individuals of wildlife populations that might utilize SWMU 4. However, Alternative 3 (excavation) carries a considerable cost for efforts that are not necessary from a risk-assessment perspective.

2.5 Selected Remedy

Alternative 3a (no excavation) is the modified selected remedy for SWMU 4; excavation to meet the associated cleanup standards is deleted from the original selected remedy, but all other components are still required. Although Alternative 3 may provide some minimal improvement in long-term effectiveness, Alternative 3a has significantly greater short-term effectiveness and a much lower cost. The overall effectiveness of Alternative 3a is, however, dependent in part upon maintaining the current type of land use at SWMU 4. As there are no foreseeable plans to change land use at SWMU 4, Alternative 3a is preferred for implementation.

2.6 Statutory Determination

2.6.1 Considering the new information that has been developed and the changes that have been made to the selected remedy, the DLA believes that the modified remedy is equally protective of human health and the environment, complies with federal and state requirements, and is more cost-effective than the original remedy. In addition, the revised remedy utilizes current, site-specific environmental data and analyses to the extent practicable for this site.

2.6.2 Compliance with statutory requirements is summarized in Table 2-2.

Table 2-2. Compliance Factors for Recommended Alternative at SWMU 4

Statutory Requirement	SWMU 4 Remedy Compliance
Protection of human health and the environment	Risk to occupational workers for current land use is below thresholds for carcinogenic and noncarcinogenic risk. Site-specific evaluation of ecological risks indicates that chemicals present in the sediment of SWMU 4 would not pose a risk to foraging birds at the stormwater detention pond. LUCs ensure continued protection of human health and the environment.
Compliance with ARARs	The selected remedy complies with all federal and state ARARs.
Cost effectiveness	The selected remedy is cost effective.
Use of permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable	The overflow weir installed at SWMU 4 encourages sedimentation within the pond, providing some level of permanent treatment. Options for alternative treatment technologies to address both metals and pesticides in the pond sediment are limited. No technologies were identified that would premeditate the sediment without severely disrupting the existing habitat.
Preference for treatment to reduce toxicity, mobility, or volume as a principal element	Given the absence of significant toxicity under current land use, no treatment is warranted.

ARAR = applicable or relevant and appropriate requirement
LUC = land use control
SWMU = solid waste management unit

3.0 OPERABLE UNIT 1

OU 1 is defined as the contaminated groundwater plume, on and off depot, that is emanating from DDJC-Tracy.

3.1 Site History, Contamination, and Selected Remedy

3.1.1 The groundwater at DDJC-Tracy has been affected by various contaminants, including chlorinated hydrocarbons and pesticides. The contaminated groundwater is present in a plume that is migrating off site to the northeast (Figure 3-1). This plume of contamination is identified primarily by concentrations of tetrachloroethene (PCE) and trichloroethene (TCE).

3.1.2 Aquifer cleanup standards established in the ROD for TCE, PCE, 1,1-dichloroethene (1,1-DCE), and dieldrin in groundwater at DDJC-Tracy are provided in Table 3-1 (Radian International, 1998).

Table 3-1. Aquifer Cleanup Standards

Analyte	Standard (µg/L)	Basis
1,1-Dichloroethene	6.0	California MCL
Tetrachloroethene	5.0	Federal MCL
Trichloroethene	5.0	Federal MCL
Dieldrin	0.05	California Action Level

MCL = maximum contaminant level
µg/L = micrograms per liter

3.1.3 The remedy selected in the ROD for OU 1 groundwater includes extraction wells, air stripping to remove volatile organic compounds (VOCs), carbon treatment to remove dieldrin, and reinjection into injection galleries. The ROD specified the primary disposal method as discharge of extracted and treated groundwater to shallow aquifers using the injection wells and infiltration galleries located on the main base property and in the annex.

3.1.4 Groundwater is presently being extracted from the Upper, Middle, and Lower Horizons of the underlying Tulare Formation and is being treated by air stripping. The groundwater from four extraction wells is being treated to remove pesticides using liquid-phase granular activated carbon. Treated groundwater is reinjected into the Upper Tulare Formation using infiltration galleries. Treatment of contaminated water is the primary remedy specified in the OU 1 ROD; however, an ESD supported the modification of the original remedy to include natural attenuation for the portion of the plume east of South Banta Road (Montgomery Watson, 1996).

3.1.5 Optimization activities were conducted at Groundwater Treatment Plant 1 (TP-1) and TP-2 in the 2003 monitoring period to improve the systems' performance and reliability. From 23 May 2003 through 20 August 2003, TP-1 was converted from an air stripper system to granular activated carbon in order to provide treatment for pesticides, which could not be removed by the air stripper.

3.2 Basis for Modification

3.2.1 It has not been possible to implement fully the remedy as it was intended in the ROD because the capacity for subsurface discharge was significantly overestimated. The ROD specified that treated groundwater would be discharged to the subsurface. Although additional infiltration galleries and numerous injection wells have been installed at the site, it has not been possible to discharge sufficient quantities of water to operate the extraction wells properly to contain the plumes of groundwater contamination. For this reason, other discharge options are necessary to supplement subsurface discharge.

3.2.2 TP-1 has a maximum capacity of 500 gallons per minute (gpm) and receives contaminated groundwater from as many as 16 extraction wells. However, typical flow through TP-1 is limited by extraction well production constraints to approximately 400 gpm. This is only 80% of its design capacity. Table 3-2 provides operational data for the extraction wells at TP-1.

Table 3-2. Groundwater Treatment Plant 1 Extraction Well Operational Data, DDJC-Tracy

Well Number	Monitoring Geologic Horizon	Design Flow Rate (gpm)	Estimated Flow Rate (gpm)[a]
EW002AU	Above Upper/Upper	40	NA
EW003	Upper	25	3
EW004AU[b]	Above Upper/Upper	25	NA
EW005AUA[c]	Above Upper/Upper	40	5
EW006AU	Above Upper/Upper	40	19
EW007A[b]	Upper	40	NA
EW008A[b]	Upper	40	NA
EW009B	Middle	40	15
EW011AU	Above Upper/Upper	40	19
EW012AU	Above Upper/Upper	40	30
EW022A	Upper	40	2
EW040AU[d]	Above Upper/Upper	10	5.7
EW041AU[d]	Above Upper/Upper	45	47
EW042AU[d]	Above Upper/Upper	40	NA
EW044AU[d]	Above Upper/Upper	15	10
EW045AU	Above Upper	15	17
EW046AU	Above Upper	10	12
EW047AU[d]	Above Upper	9	10
EW048AU[d]	Above Upper	2	1.5

[a] Based on the average volume documented in the Groundwater Treatment Monthly Performance Monitoring Reports reporting periods October 2002 through September 2003. Estimated flow rates are calculated using the following method: sum of monthly average flow (gallons per day)/number of months of available data/1,440 minutes per day.
[b] Well turned off in May 2001 per agreement with California Regional Water Quality Control Board.
[c] Indicates a well with a double screen.
[d] Well will begin operation in November/December 2003.

gpm = gallons per minute
NA = not available

3.2.3 TP-2 has a capacity of 800 gpm but has historically operated in the range of 450 to 650 gpm, or between 55% to 80% of its design capacity. See Table 3-3 for operational data for the extraction wells at TP-2. Because of limitations in the capacity of the infiltration galleries, the existing remedy is unable to extract and treat sufficient quantities of water to adequately contain the contaminated ground-water plume at OU 1.

3.3 Description of Discharge Alternatives

3.3.1 Because the capacity for subsurface discharge was significantly overestimated in the ROD, other discharge options were evaluated to supplement subsurface discharge. The following four supplemental discharge options were considered:

- Alternative 1 – No Action;
- Alternative 2 – Infiltration galleries in the southern portion of the depot;
- Alternative 3 – Additional infiltration galleries in the DDJC-Tracy Annex; and
- Alternative 4 – Overland flow with a surface water discharge option (West Side Irrigation Ditch).

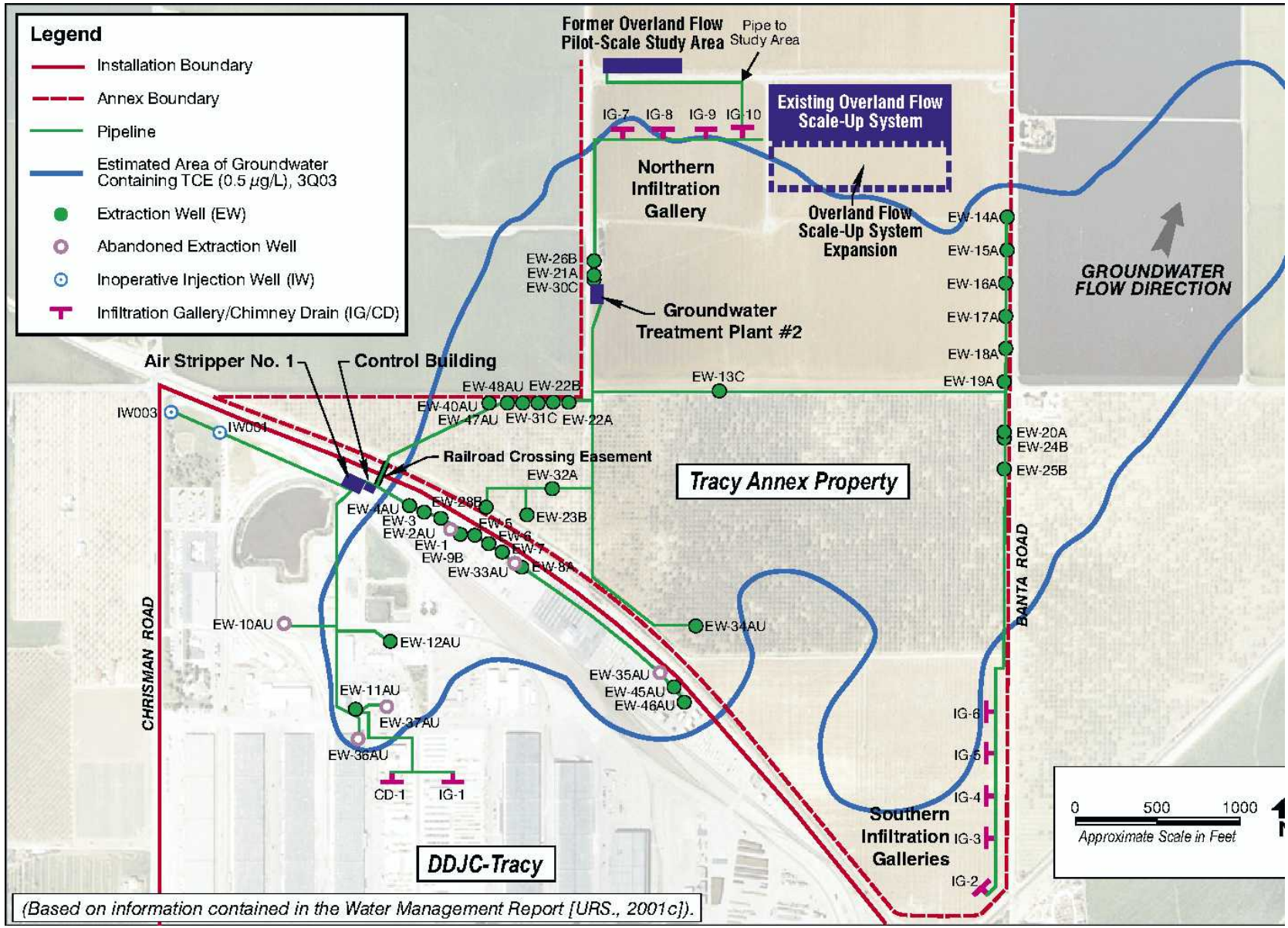
Legend
Installation Boundary
Annex Boundary
Pipeline
Estimated Area of Groundwater Containing TCE (0.5 µg/L), 3Q03
Extraction Well (EW)
Abandoned Extraction Well
Inoperative Injection Well (IW)
Infiltration Gallery/Chimney Drain (IG/CD)
Former Overland Flow Pilot-Scale Study Area
Pipe to Study Area
Existing Overland Flow Scale-Up System
Overland Flow Scale-Up System Expansion
Northern Infiltration Gallery
Groundwater Treatment Plant #2
GROUNDWATER FLOW DIRECTION
Air Stripper No. 1
Control Building
Railroad Crossing Easement
Tracy Annex Property
CHRISMAN ROAD
BANTA ROAD
Southern Infiltration Galleries
DDJC-Tracy
IG-7
IG-8
IG-9
IG-10
EW-26B
EW-21A
EW-30C
EW-14A
EW-15A
EW-16A
EW-17A
EW-18A
EW-19A
EW-13C
EW-48AU
EW-22B
EW-40AU
EW-47AU
EW-31C
EW-22A
IW003
IW004
EW-20A
EW-24B
EW-25B
EW-32A
EW-28B
EW-4AU
EW-3
EW-2AU
EW-1
EW-9B
EW-33AU
EW-5
EW-6
EW-7
EW-8A
EW-23B
EW-10AU
EW-12AU
EW-34AU
EW-35AU
EW-45AU
EW-46AU
EW-11AU
EW-37AU
EW-36AU
CD-1
IG-1
IG-6
IG-5
IG-4
IG-3
IG-2
0
500
1000
Approximate Scale in Feet
(Based on information contained in the Water Management Report [URS., 2001c]).

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Table 3-3. Groundwater Treatment Plant 2 Extraction Well Operational Data, DDJC-Tracy

Well Number	Monitoring Geologic Horizon	Design Flow Rate (gpm)	Estimated Flow Rate (gpm)[a]
EW013C	Lower	40	51
EW014A[b]	Upper	40	12
EW015A[b]	Upper	40	28
EW016A[b]	Upper	40	29
EW017A[b]	Upper	40	33
EW018A[b]	Upper	40	19
EW019A[b]	Upper	40	47
EW020A[b]	Upper	40	20
EW021A[b]	Upper	40	17
EW024B[b]	Middle	9	3
EW025B[b]	Middle	8.5	6
EW026B	Middle	40	95
EW027B	Middle	40	61
EW028B	Middle	40	33
EW029B[b]	Middle	40	17
EW030C[b]	Lower	40	74
EW031C[b]	Lower	19.5	9
EW032AU	Above Upper	5	3
EW034AU	Above Upper	5	NA

[a] Based on the average volume documented in the Groundwater Treatment Monthly Performance Monitoring Reports reporting periods October 2002 through September 2003. Estimated flow rates are calculated using the following method: sum of monthly average flow (gallons per day)/number of months of available data/1,440 minutes per day.
[b] Indicates a well with a double screen.

gpm = gallons per minute
NA = not available

3.3.2 Alternative 1, which consists of no action, does not create additional costs for site management. However, the no-action alternative does not meet the discharge requirements of the selected remedy identified in the ROD. Alternative 2 requires installation of a conveyance line from TP-1 to the southern portion of the depot in areas designated in the IMP for other development and construction. Preliminary studies suggest the area is not suitable for receiving large quantities of water; therefore, exceedingly large areas for infiltration would be required to optimize the capacity of the groundwater recharge disposal method. In addition, the cost and permitting for construction of the infiltration galleries and conveyance line is prohibitive. Alternative 3 consists of installing additional infiltration galleries in the DDJC-Tracy Annex. Because of the original overestimation of the performance of the current infiltration galleries, installing additional infiltration galleries is not considered a viable option. The cost of constructing a large number of infiltration galleries necessary to handle the increased volume of treated groundwater is also cost prohibitive. Alternative 4 includes using overland flow with the option of discharging treated groundwater to the West Side Irrigation Ditch. The addition of a surface water discharge option provides more operational flexibility in disposal options if the capacity of infiltration galleries or the overland flow system decrease. Therefore, DDJC would not have to scale back or shut down extraction wells. Because of the ease of implementation, cost effectiveness, and expectation of regulatory acceptance, Alternative

4 (overland flow) is the selected modification to the original ROD remedy.

3.4 Description of the Modification to the Selected Remedy

3.4.1 The modification to the original remedy adds overland flow as a supplemental discharge option and surface water discharge, if necessary. Subsurface discharge is still preferred and will be used to the extent possible. Use of both subsurface discharge and overland flow will improve plume capture by enabling full operation of the groundwater extraction system.

3.4.2 Revision of the Waste Discharge Requirements (WDRs) is necessary to allow discharge of treated groundwater to the overland flow system and to surface water as discharge options supplemental to the existing infiltration galleries and chimney drain. However, revision of the existing WDRs alone is not adequate to add a surface water disposal option because surface water discharge would result in an ongoing, off-site discharge, which would require a National Pollutant Discharge Elimination System (NPDES) permit. The current DDJC-Tracy stormwater permit cannot be revised to include surface discharge of treatment plant effluent because the General Permit applies to stormwater discharges only. Therefore, in conjunction with revision of the WDRs to allow discharge to surface water, an application for an NPDES permit is needed to allow discharge of treated groundwater to the West Side Irrigation Ditch. The addition of a surface water discharge option provides more operational flexibility in disposal options if the capacity of infiltration galleries or the overland flow system decrease. To help maintain the maximum beneficial use of treated groundwater, surface water discharge will be used only as a "last resort" option.

3.4.3 The key revision to the WDRs would allow for discharge of treated groundwater to overland flow disposal plots on the Annex property adjacent to the DDJC-Tracy depot. Furthermore, a revision to the WDRs would be necessary to allow discharge of treated water to the West Side Irrigation Ditch during time periods when discharge capacities to other discharge options are insufficient. If the overland flow plot discharge capacity were to decrease as the capacity of infiltration galleries did, an alternative discharge option would be needed to assure that the extraction/treatment systems can continue to operate. Discharge to the West Side Irrigation Ditch would provide an alternative for treatment plant effluent disposal in the event that the combination of overland flow plots, infiltration gallery, and chimney drain capacity is not adequate. The West Side Irrigation Ditch parallels the west side of the DDJC-Tracy depot. DDJC-Tracy will enter into an agreement with West Side Irrigation District addressing the flow rates, frequency, and duration of additional releases, if discharge to the ditch is allowed in the revised WDRs and if an NPDES permit is secured. Treated groundwater from TP1 and TP2 would be routed to the ditch through the effluent line that leads to the former injection wells in the northeast corner of the depot.

3.4.4 Groundwater sampling at OW010AU, an observation well adjacent to the overland flow plots, and soil sampling will continue as was practiced throughout the overland flow study. Samples of treatment plant effluent will also continue to be analyzed. During any month or any portion of a month that groundwater is discharged to the West Side Irrigation Ditch, DDJC will collect samples at points upstream and downstream with the tie-in with the Facility 202 pump station effluent line. Receiving water sample collection for analysis would be conducted during discharge at a frequency no greater than once per month. The West Side Irrigation Ditch is not exposed at the surface along part of its route. For some distances, flow in the ditch is conveyed by culverts. Upstream and downstream samples would be collected monthly only from selected locations where the water in the ditch is exposed at the surface and only during periods of time when treated water is being discharged to the ditch. Analyses of ditch samples would include pH, specific conductance, turbidity, temperature, dissolved oxygen concentration, VOCs, and organochlorine and carbamate-urea pesticide concentrations. Additionally, the flow rate will be measured and an observation of the

upstream ditch flow quantity reported. Additional details of the proposed revisions and permit requirements will be included in the renewal and revision request of the WDRs, as well as a new NPDES permit.

3.4.5 The overland flow technology consists of applying water to a designated area of soil so that disposal occurs through percolation into the soil, evaporation to the air, and evapotranspiration through plant uptake. The overland flow system is designed to have water flowing continuously over the soil in a clearly bounded area without extensive ponding. The DDJC-Tracy site is amenable to this technology because it is surrounded by large areas of land used for farming, with climate and soil conditions suitable for overland flow.

3.4.6 The selected location (on the Tracy Annex) of the overland flow disposal area can serve as a hydraulic barrier when percolating discharged water forms a groundwater mound that prevents the contaminant plume from moving to the north. This barrier will direct the plume, instead, toward the extraction well system to the east (Figure 3-2). The rectangular shape of the plot extends to the east of the hydraulic barrier provided by the Northern Infiltration Galleries. The location is close enough to the plume to act as a barrier but not close enough to interfere with the plume (e.g., by splitting or diluting the plume). The *Overland Flow Pilot Study Report* (Radian International, 2000) found that the overland flow method could dispose of approximately 87 gpm/acre. Thus, approximately 7.8 acres (679 gpm at 87 gpm/acre) would be required to provide the desired increase in flow capacity.

3.4.7 Complete saturation of the plot was not achieved during the pilot-scale study, although for the last several days of the study, steady-state saturation was achieved. Approximately 75% of the plot area could successfully dispose of up to 90 gpm of water for the 33-day study period without overflowing the area boundaries. The study-plot area was 0.8 acre, but the area within OU 1 has identified three plots of approximately 2.6 acres each. This area will provide the additional discharge capacity of approximately 680 gpm for TP-1 and TP-2.

3.4.8 The encouraging results from the overland flow pilot-scale study resulted in a full-scale demonstration of overland flow that has now been successfully completed. The full-scale study was performed over a 22-month period, beginning on 25 January 2001. The results of this study are reported in the *DDJC-Tracy Full-Scale Overland Flow Report* (URS, 2003). The full-scale study supports the use of overland flow as a viable discharge option at DDJC-Tracy.

3.5 Evaluation of the Modification to the Selected Remedy

3.5.1 Remedial Action Objectives

3.5.1.1 The remedy selected in the ROD for VOC contamination in OU 1 groundwater was treatment and extraction with subsurface discharge. Remedial action objectives are not presently being achieved. The addition of overland flow is intended to meet the following remedial action objectives:

- Remediate hot spots (i.e., areas with the highest levels of 1,1-DCE, PCE, TCE, and dieldrin in groundwater);
- Minimize transport of COCs (1,1-DCE, PCE, TCE, and dieldrin) off depot; and
- Remediate 1,1-DCE, PCE, TCE, and dieldrin to the aquifer cleanup levels listed in Table 3-1.

3.5.1.2 This ROD Amendment modifies the existing alternative within OU 1 to include overland flow and surface water discharge, if necessary, as a disposal option for treated water. The modified remedy is evaluated against the nine NCP criteria described in the following paragraphs.

3.5.2 Overall Protection of Human Health and the Environment

3.5.2.1 The remedy selected in the ROD (groundwater extraction and treatment with subsurface discharge) has not been as protective of human health and the environment as was anticipated in the ROD because the capacity for subsurface discharge was overestimated in the ROD. Consequently, a modification of the original remedy is needed to contain and remediate the plume in accordance with the ROD requirements.

3.5.2.2 The modified remedy is protective of human health and the environment because it will minimize contaminant transport off site. The modified remedy is intended to meet the ROD objectives for cleanup, within 50 years, to the state maximum contaminant level (MCL) of 6 µg/L for DCE, the federal MCLs of 5 µg/L for PCE and TCE, and the California action level of 0.05 µg/L for dieldrin. Without the addition of surface discharge, the remedy cannot contain or treat the COCs.

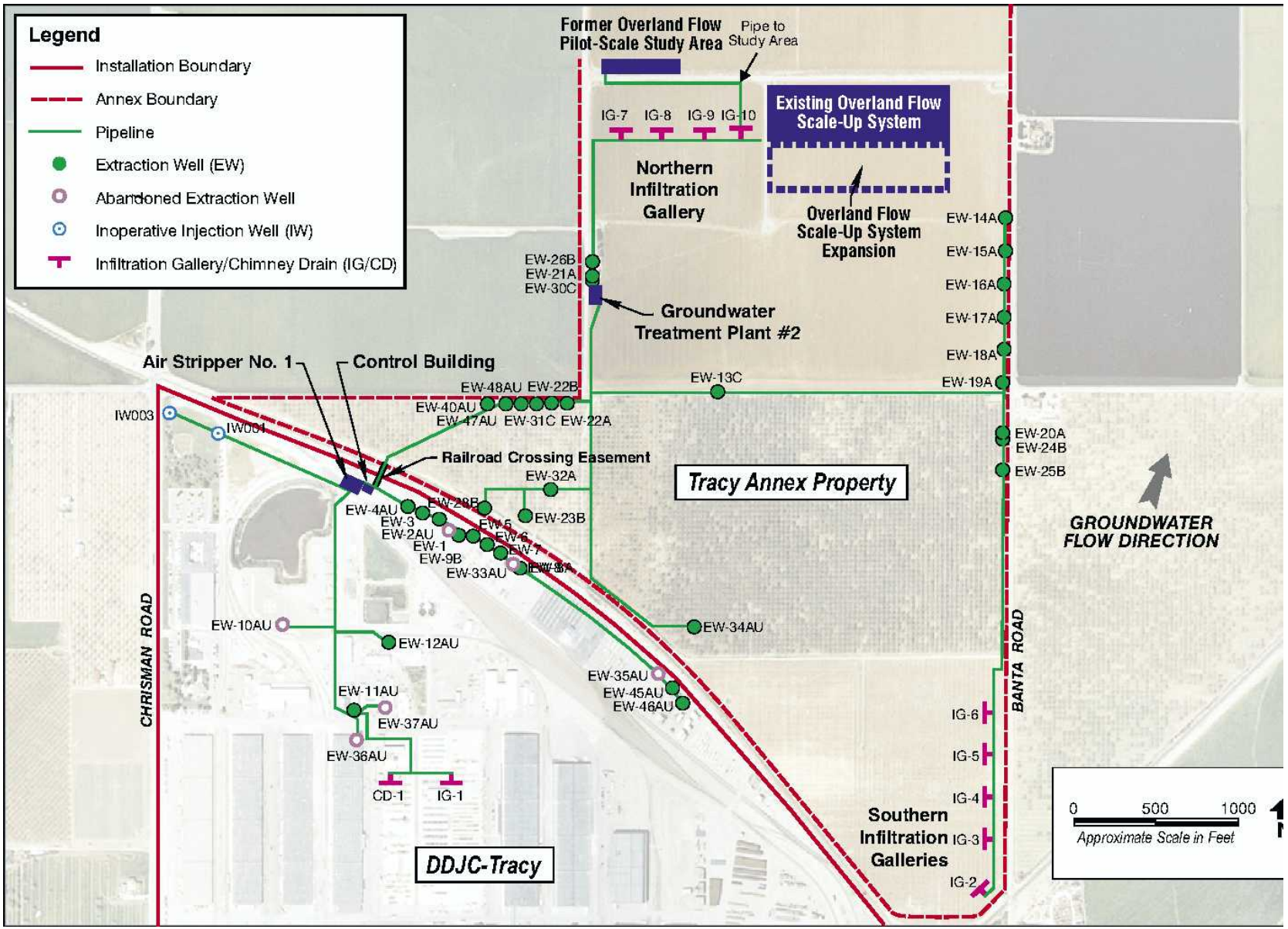
3.5.2.3 Some factors to consider with the addition of surface discharge include the following:

- Overland flow may contribute to soil erosion. However, if the area is large enough to accommodate the additional water, it is unlikely that soil erosion or sedimentation will be a problem at the site. Currently, berms are installed around the outside of the plots to help contain the water and prevent sediment runoff. Berms or other sedimentation and erosion control practices will be implemented to prevent the introduction of sediment into stormwater and surface water runoff. The *Overland Flow Pilot-Scale Study Report* (Radian International, 2000) found that the 0.8-acre test plot successfully treated applied water without overflowing the plot boundaries. However, rainfall was limited during the pilot-scale study, and evaporation rates were low because of relatively cold conditions.

- Overland flow may be adversely affected by external environmental conditions, such as cold weather and extended rain periods. The *Overland Flow Pilot-Scale Study Report* (Radian International, 2000) was performed during relatively cold conditions, but with limited rainfall. Evaporation rates were considered to be relatively low, so the calculated disposal capacity is considered to be conservative. Subsurface discharge will continue to be used in any event. Furthermore, surface discharge to the West Side Irrigation, as discussed in Section 3.3, may also be utilized if overland flow capacity is significantly impacted by long-term application.

- Overland flow has the potential to introduce disease-carrying insects, such as mosquitoes, given the possibility of stagnant water conditions. This poses human health and environmental concerns. Measures such as disking, ripping, and furrowing of the soil will be implemented to reduce the potential for stagnant water conditions. This will have to be continuously managed to maintain the required infiltration rates.

- Overland flow may contribute to salt accumulation in the soil. Analytical data provided from Fruit Growers Laboratory, Inc. in Stockton, California, showed that the irrigation water being used for the pilot-scale study had a high chloride content (Radian International, 2000). In the laboratory staff's opinion, this could cause a salt buildup problem if overland flow is used for prolonged periods of time. Thus, consideration of any long-term use of irrigation water must include the effect of chloride on irrigated vegetation. The use of management practices to remove excessive salts, such as addition of soil amendments to chemically precipitate the salts, or maintaining a high water content in the soil to dilute the salts, may help minimize the future effects of salt accumulation.


Legend
Installation Boundary
Annex Boundary
Pipeline
Extraction Well (EW)
Abandoned Extraction Well
Inoperative Injection Well (IW)
Infiltration Gallery/Chimney Drain (IG/CD)
Former Overland Flow Pilot-Scale Study Area
Pipe to Study Area
Existing Overland Flow Scale-Up System
IG-7 IG-8 IG-9 IG-10
Northern Infiltration Gallery
Overland Flow Scale-Up System Expansion
EW-14A
EW-15A
EW-16A
EW-17A
EW-18A
EW-19A
EW-26B
EW-21A
EW-30C
Groundwater Treatment Plant #2
Air Stripper No. 1
Control Building
EW-48AU EW-22B
EW-40AU
EW-47AU EW-31C EW-22A
EW-13C
IW003
IW004
Railroad Crossing Easement
EW-32A
Tracy Annex Property
EW-20A
EW-24B
EW-25B
GROUNDWATER FLOW DIRECTION
EW-4AU
EW-3
EW-2AU
EW-1
EW-9B
EW-33AU
EW-23B
EW-10AU
EW-12AU
EW-34AU
EW-35AU
EW-45AU
EW-46AU
EW-11AU
EW-37AU
EW-36AU
CD-1
IG-1
CHRISMAN ROAD
BANTA ROAD
IG-6
IG-5
IG-4
IG-3
IG-2
Southern Infiltration Galleries
DDJC-Tracy
0 500 1000
Approximate Scale in Feet

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- Increased water flow may have an effect on the water table level. Water elevation data will have to be collected regularly to monitor the effect of overland flow discharge on the water table.

- The treated groundwater may have an impact on the crops being grown in the discharge area (because boron concentrations found in this water are high). Discharge water should be monitored for boron. Weed growth may reduce water infiltration into the soil and limit the effectiveness of overland flow. Therefore, weed abatement practices will have to be implemented to control weed growth in the area. Herbicides are being used, as needed, to control weed growth. However, herbicides also pose environmental risks.

3.5.2.4 Although there are several potential environmental impacts associated with overland flow, these impacts can be monitored and managed. The addition of overland flow to the remedy is considered justifiable because of the impacts of plume migration without sufficient discharge capacity.

3.5.3 Compliance with ARARs

Currently, the groundwater treatment and extraction system is not meeting the ARARs established in the ROD (Radian International, 1998). The effectiveness of subsurface discharge was overestimated; therefore, the selected remedy must be modified to meet the MCLs for 1,1-DCE, PCE, and TCE, and the California action level for dieldrin. To meet the ARARs, it is necessary to modify the existing alternative to include surface discharge (overland flow) and surface water discharge, if necessary.

3.5.4 Long-Term Effectiveness

3.5.4.1 The original remedy (extraction and treatment with subsurface discharge) was intended to provide long-term effectiveness and permanence by actively removing COCs from the groundwater within OU 1. However, because subsurface discharge was originally over-estimated in the ROD, the overland flow modification is needed to meet the 50-year timeline stated in the ROD.

3.5.4.2 The original remedy is not an adequate and reliable plume control mechanism, because it does not effectively capture the contaminated plume within OU 1. The current flow rates do not discharge the amount of groundwater required to be extracted to capture the plume. The combination of infiltration galleries and the overland flow plots is considered capable of supporting effective plume capture.

3.5.5 Reduction of Toxicity, Mobility, and Volume through Treatment

3.5.5.1 The treatment process (air stripping and activated carbon) is unchanged from the ROD. The targeted COCs (1,1-DCE, PCE, TCE, and dieldrin) within OU 1 will remain unchanged with the addition of overland flow.

3.5.5.2 Currently, the original remedy cannot process sufficient water to adequately contain the contaminated plume within OU 1. Therefore, significant reductions in the toxicity, mobility, or volume of the COCs have not been achieved (the plume is escaping). Overland flow has the potential to provide an additional disposal capacity of approximately 680 gpm within OU 1. The current infiltration galleries have disposal capacities between 10 and 150 gpm. TP-1 needs an additional 200 gpm, and TP-2 needs an additional 250 gpm to function at the capacity specified in the ROD. Therefore, the addition of only two plots operating at full capacity will provide the required 450-gpm disposal capacity needed for both TP-1 and TP-2.

3.5.6 Short-Term Effectiveness

3.5.6.1 The original remedy did not pose risks to the community, workers, or the environment during remedial actions, and it is not expected that overland flow will pose additional risks during remedial actions.

3.5.6.2 The modified remedy will achieve treatment objectives as originally stated in the

ROD in approximately 50 years. Without the modification, treatment objectives are not expected to be achieved in 50 years.

3.5.7 Implementability

3.5.7.1 A full-scale overland flow system has been constructed and is operating within OU 1.

3.5.7.2 Some implementability concerns are noted hereafter:

- Frequent tilling or ripping may weaken the surface structure of the soil, leading to compacted conditions that can reduce infiltration rates.
- Chemical scaling of the totalizers and pipeline is a concern, but measures have been taken to reduce the amount of scaling.
- A high chloride content in the irrigation water may limit the implementability of this alternative. Continuous management practices will have to be implemented to minimize salt accumulation in the soil.

3.5.8 Cost

Table A-3 in Appendix A includes the costs for the addition of overland flow to the original remedy. These costs are based on costs originally estimated for full-scale implementation (Radian International, 2000). These costs are in addition to the cost of the full-scale remedy developed for OU 1 in the ROD, which have been included in Table A-3.

3.5.9 State and Community Acceptance

It is anticipated that the state and the community will accept the modified remedy because it is protective of both human health and the environment.

3.5.10 Utilization of Permanent Solutions, Alternative Treatment, and Resource Recovery

The extraction and treatment system in conjunction with overland flow uses permanent solutions and alternative technologies or resource recovery technologies to the maximum extent practicable. The mobility of contaminants will be controlled through extraction, and treatment will be used to remove the COCs from the aquifer permanently.

3.6 Statutory Determination

3.6.1 Considering the new information that has been developed and the changes that have been made to the selected remedy, the DLA believes that the modified remedy is equally protective of human health and the environment, complies with federal and state requirements, and is more cost effective than the original remedy. In addition, the revised remedy utilizes current, site-specific environmental data and analyses to the extent practicable for this site.

3.6.2 Compliance with statutory requirements is summarized in Table 3-4.

Table 3-4. Compliance Factors for the Recommended Alternative for OU 1 Groundwater

Statutory Requirement	SWMU 4 Remedy Compliance
Protection of human health and the environment	The modified remedy attains objectives for containment and treatment. Erosion, vectors, salt accumulation, and water quality must be monitored and managed.
Compliance with ARARs	The modified remedy complies with all federal and state ARARs.
Cost effectiveness	The modified remedy is cost effective.
Use of permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable	The modified remedy uses permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.
Preference for treatment to reduce toxicity, mobility, or volume as a principal element	Treatment will actively reduce the volume and mobility of the COCs.

ARAR = applicable or relevant and appropriate requirement
COCs = contaminants of concern
OU = operable unit

4.0 DSERTS 72

A storm drain and catch basin were installed in the DSERTS 72 site during 1998 and 1999. The site is predominantly covered with pavement, and is located westward of the sewage lagoons (SWMUs 2 and 3) and eastward of the storm-water detention basin (SWMU 4), as shown on Figure 4-1. Results from the chemical analysis of soil excavated during the installation activities prompted the identification of this area as a new (with respect to the ROD), potentially contaminated area, and the site-investigation process was initiated.

4.1 Site History and Contamination

4.1.1 Between December 1998 and February 1999, ICF Kaiser Engineers, Inc., installed a new storm drain and catch basin west of SWMUs 2 and 3. Soil excavated as part of the storm drain installation was removed from a trench running north to south along the length of the sewage lagoons. This soil was temporarily stockpiled and sampled to classify it for use as backfill or for off-site disposal; the stockpiles have since been removed. Analytical results from the soil stockpiles indicated that several COPCs were present (Table 4-1) and that further sampling was warranted. The area was subsequently identified as DSERTS 72.

4.1.2 In October 1999 and March 2000, soil and groundwater were sampled to determine whether contamination existed beyond the area of excavation for the new storm drain. The results of the sampling effort are reported in the *No Further Response Action Planned for Defense Site Environmental Reporting and Tracking System 72* report (URS, 2001b); analytical data for sample locations that had detected concentrations are provided in Table 4-1. This report also includes the results of a site-specific water quality assessment, performed to evaluate impacts to groundwater quality, and a risk assessment.

4.1.3 Investigation samples collected after the discovery of the site identified total petroleum hydrocarbons (TPH), quantified as motor oil (TPH-motor oil), DDD, DDT, DDE, chlordane, dieldrin, endrin, and selenium as COPCs. Soil and groundwater samples were collected, and deionized water waste extraction test (DI-WET) analyses were performed to assess the potential impacts to groundwater. DDX constituents and dieldrin were detected in one groundwater sample but not in the soil sample collected from a short distance above that groundwater sample. This indicates that DSERTS 72 is not a continuing source of pesticides migrating to groundwater. In addition, analyses were conducted on DI-WET extracts from five soil samples to determine the amount of pesticides that could be dissolved in rainwater and migrate to groundwater. Pesticides were not detected in any of the DI-WET extract samples, confirming that DSERTS 72 soil is not a current or future source of pesticide concentrations in groundwater. DI-WET results also indicated that TPH-motor oil does not pose a threat to groundwater quality (URS, 2001b).

4.1.4 A risk assessment was also performed to evaluate the potential risk to human health from selenium and pesticides. The exposure scenarios include light industrial and construction workers, assuming that the current and future land use for the DSERTS 72 site will remain industrial. The results provided by these scenarios are health protective estimates of cancer risks and noncancer hazard indices (HIs).[2] Total carcinogenic risks for exposures to soil range from 3×10^{-7} (construction worker) to 8.8×10^{-7} (industrial worker). No carcinogenic risks for individual COPCs or exposure pathways were equal to or greater than 1×10^{-6}. The evaluation of the potential for non-carcinogenic effects produced total HIs that were all less than or equal to 0.04, which indicates that exposure to COPCs are more than an order-of-magnitude below toxicity doses for noncarcinogenic effects (URS, 2001b).

[2] Cancer risks are expressed as probabilities of developing cancer (based on assumptions specified in the risk assessment). Risks less than 1×10^{-6} are considered insignificant. A hazard index (HI) is the ratio of chemical exposure to toxicity; an HI greater than 1.0 indicates that exposure exceeds a toxic concentration.

4.1.5 An ecological risk assessment was not performed for the DSERTS 72 site. The DSERTS 72 site was not identified as an area of potential ecological habitat, and most of the site is covered by asphaltic pavement. Therefore, there are no significant opportunities for completed exposure pathways for potential ecological receptors.

4.1.6 Chlordane, endrin, and selenium were detected in the soil stockpiles created during the installation of the storm drain at DSERTS 72. However, these constituents were not detected in the soil or groundwater during later sampling events at the location of the storm drain. The entire soil volume affected by the chemicals probably was removed during excavation and construction activities associated with the installation of the storm drain.

4.2 Basis for Change

DSERTS 72 is a new site that was discovered after the ROD was signed in 1998.

4.3 Description of Remedy for DSERTS 72

4.3.1 Under the NCP (40 CFR 300), future land use assumptions are developed and considered when performing a baseline risk assessment, developing remedial action alternatives, and selecting a remedy. The NCP permits nonresidential land use assumptions to be considered when selecting cleanup levels and remedies, as long as the selected remedies are protective of human health and the environment. The U.S. EPA further clarified the role of future land use assumptions in the remedy selection process in its directive *Land Use in the CERCLA Remedy Selection Process* (U.S. EPA, 1995).

4.3.2 The DSERTS 72 site is not a potential source of future groundwater contamination. Given the current land use, the contaminants at DSERTS 72 do not pose an unacceptable risk to human health. The risk assessment assumed continued industrial use at the depot and did not account for changes in land use. Because of the current and anticipated future industrial use of the depot, the remedial decision for DSERTS 72 is not based on risk to potential residents.

4.3.3 LUCs are an appropriate remedy for DSERTS 72 given the current land use for the site. Land use controls include any type of physical, legal, or administrative mechanism that restricts the use of, or limits access to, real property to prevent or reduce risks to human health and the environment. Institutional controls include legal mechanisms imposed to ensure that restrictions on land use, developed as part of a remedy decision, stay in place.

4.3.4 Institutional controls are the selected remedy for DSERTS 72 to prevent unacceptable risks to human health and the environment associated with contamination remaining at the site. LUCs are included as part of the selected remedy at DSERTS 72. LUCs are required because the selected remedial action allows residual soil contamination to be left in place at levels that permit industrial land uses, but exceed levels that allow for unrestricted reuse, including residential development. The remedial action objective of LUCs is to prohibit residential use of the property, including use for day care. LUCs consist of administrative measures selected by the DLA to limit exposure to residual hazardous substances. These measures restrict future land use and ensure the effectiveness of the remedy. The DLA will implement the following as performance measures:

- Include in an addendum to the IMP any specific controls required. The IMP addendum that identifies the specific control measures for DSERTS 72 and other institutional control sites on the Depot will be incorporated in an appendix in the *ESD to the DDJC-Tracy Site-Wide Comprehensive ROD* (URS, 2003). Controls are required because of the presence of pollutants or contaminants, the current land users and uses of the site, the geographic control boundaries, and the objectives of the controls. The IMP Addendum will reflect the applicable controls restricting the site from use for residential development, play areas, or day care facilities. The section describing

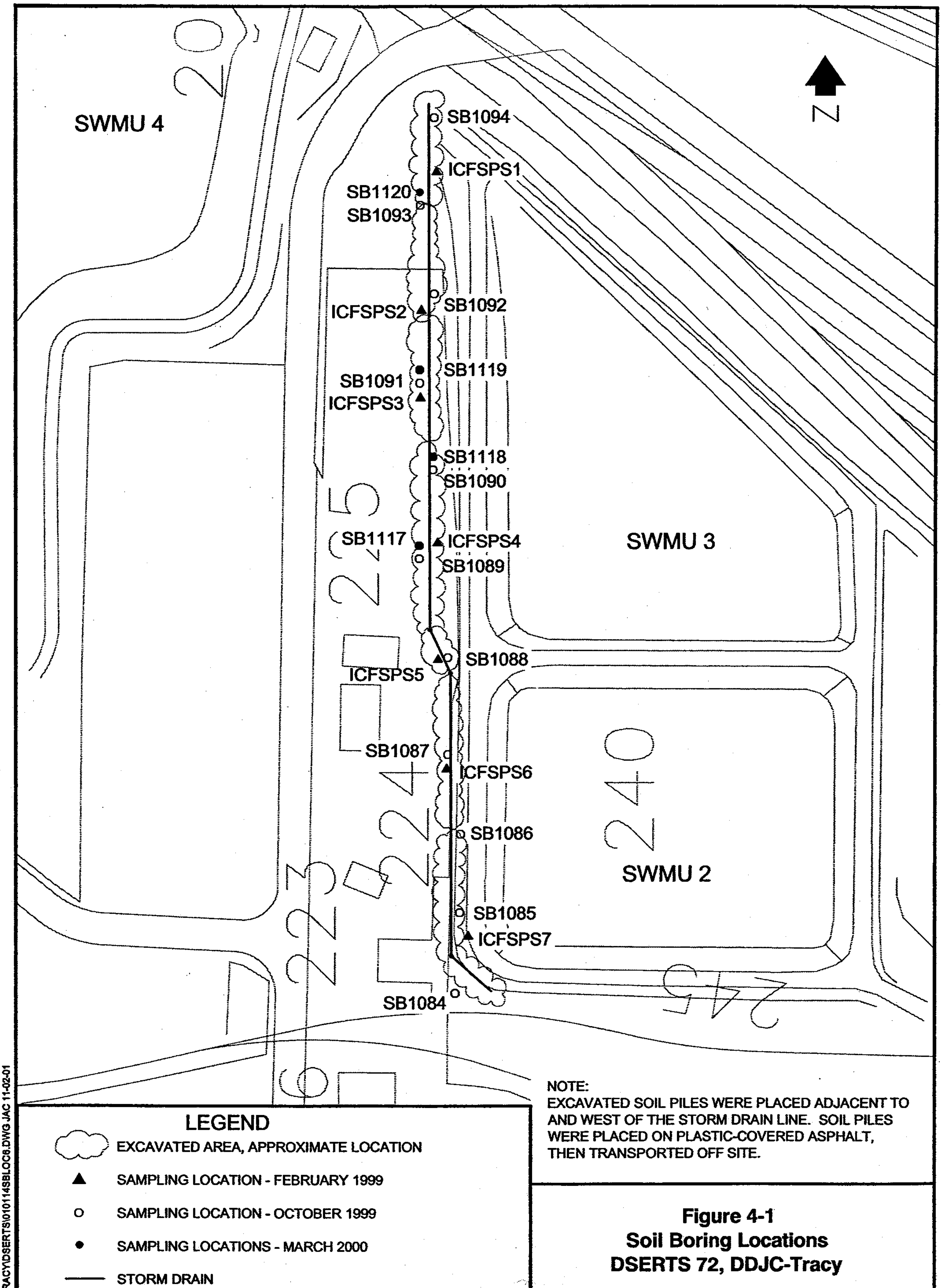

Figure 4-1
Soil Boring Locations
DSERTS 72, DDJC-Tracy

Table 4-1. Sample Locations with at Least One Detected Concentration of Chemicals of Potential Concern at DSERTS 72

Location		Depth (ft bgs)	Date	Concentration (mg/kg) DDX	Dieldrin	Endrin	Chlordane	Selenium
ICFSPS1	Stockpile	NR	2/1999	1.395 J	0.17 J	<0.003	<0.003	0.57 J
ICFSPS2	Stockpile	NR	2/1999	1.243	0.018 J	0.17	<0.003	0.56
ICFSPS3	Stockpile	NR	2/1999	0.407	0.017 J	<0.0015	<0.0015	0.69
ICFSPS4	Stockpile	NR	2/1999	2.27	0.23	0.18	<0.0015	0.57 J
ICFSPS5	Stockpile	NR	2/1999	0.12 J	0.015 J	<0.003	<0.003	<0.186
ICFSPS6	Stockpile	NR	2/1999	0.238 J	0.019 J	<0.003	<0.003	0.7
ICFSPS7	Stockpile	NR	2/1999	2.399 J	0.15 J	0.32	0.1 J	0.71
SB1084	Adjacent to Excavated Area	11	10/1999	0.299	0.013	<0.0024	<0.0061	<0.61
		12		0.184	0.009	<0.0023	<0.0057	<0.57
SB1085	Adjacent to Excavated Area	2	10/1999	0.009	<0.0036	<0.0024	<0.0059	<0.59
		16		0.010	<0.0037	<0.0024	<0.0061	<0.61
SB1087	Adjacent to Excavated Area	2	10/1999	0.044	<0.0036 U	<0.0024	<0.0060	<0.60
SB1089	Adjacent to Excavated Area	2	10/1999	0.21	0.06J	<0.024	<0.060	<0.60
SB1090	Adjacent to Excavated Area	0.5	10/1999	0.033 J	0.0081 J	<0.0023 U,J	<0.0058 U,J	<0.81 U,J
		7		0.0 J	<0.066 U,J	<0.044 U,J	<0.11 U,J	<0.55
SB1091	Adjacent to Excavated Area	1	10/1999	0.0 J	0.027 J	<0.0024 U,J	<0.0059 U,J	<0.82
		6		0.012	<0.0035 U,J	<0.0024 U,J	<0.0059 U,J	<0.35
		12		0.177	0.012	<0.0024 U,J	<0.0060 U,J	<0.61
SB1092	Adjacent to Excavated Area	0.5	10/1999	0.040	0.015	<0.0024 U,J	<0.0059 U,J	<0.59
SB1094	Adjacent to Excavated Area	2	10/1999	0.054 J	0.0053 J	<0.0021 U,J	<0.0053 U,J	<0.53
		7		<0.014 U,J	<0.0038 U,J	<0.0026 U,J	<0.0064 U,J	<0.64
SB1117	Adjacent to Excavated Area	6.5	3/2000	0.541	0.073	<0.0021	<0.0052	NR
SB1119	Adjacent to Excavated Area	2.5	3/2000	0.017	0.0048	<0.0024	<0.0059	NR

DDX = the sum of the concentrations of DDD, DDE, and DDT
DSERTS = Defense Site Environmental Reporting and Tracking System
ft bgs = feet below ground surface
J = estimated concentration
mg/kg = milligrams per kilogram
NR = not reported
U = not detected
< = indicates the concentration was below the reporting limit for detection

the specific controls will also refer the reader to the DDJC-Tracy Environmental Project Manager if more information is needed. The IMP Addendum will contain a map indicating all areas where contaminated soil is located and the LUCs in effect for DSERTS 72.

- Notify the regulatory agencies of any DDJC-Tracy proposals for a major land use change at a site inconsistent with the controls and assumptions described herein, any anticipated action that may disrupt the effectiveness of the LUCs, any action that might alter or negate the need for the LUCs, or any anticipated transfer of the property subject to the LUCs.

- Maintain existing administrative controls while LUCs are in place; specifically, the documentation of LUCs in the IMP Addendum for DSERTS 72, and the establishment of notification procedures for any land use changes that is consistent with Section 2.3.2 of the ESD to the Site-Wide Comprehensive ROD.

- Conduct annual monitoring and take prompt action to restore, repair or correct any deficiencies or failures identified with the LUCs. A different monitoring schedule may be agreed upon according to the schedule provisions of the FFA if all parties agree and if the change reasonably reflects the risk presented by the site. Monitoring will include updating a list of personnel responsible for LUCs, contacting these personnel to ensure they have access to the IMP Addendum, documenting that no change in land use has occurred, and contacting all parties to the FFA if the monitoring effort discovers a change in land use.

4.3.5 The DLA is responsible for implementing, monitoring, maintaining, and enforcing the identified controls. If the DLA determines that it cannot meet specific LUC requirements, it is understood that the remedy may be reconsidered and that additional measures may be required to ensure the protection of human health and the environment. In addition, to assure the regulatory agencies and the public that the DLA will fully comply with and be accountable for the performance measures identified herein, it will submit in a timely manner to U.S. EPA and the State of California an annual monitoring report on the status of LUCs and/or other remedial actions, including the operation and maintenance, and monitoring thereof, and how any LUC deficiencies or inconsistent uses have been addressed. The report will be included in the DDJC-Tracy Well Monitoring Program Annual Monitoring Report, and will be filed in the IR. The LUC section of the report would not be subject to approval and/or revision by U.S. EPA and the State of California.

4.3.6 The first step in restricting specific types of development at a site is to write an addendum to the DDJC-Tracy Installation Master Plan to place constraints ensuring that these sites will not be used for specific types of land use, such as residential development or day care facilities. The IMP implements zone-like requirements at DDJC-Tracy. DLA installations require this comprehensive planning document for the establishment and maintenance of the institutional and engineering controls. The IMP resides in the office of the DDJC-Tracy Facility Engineer. DDJC-Tracy will write an addendum the IMP to establish the constraints against residential development at DSERTS 72. The addendum to the IMP will include a map showing the location of the LUCs areas at which specific development is prohibited. DDJC-Tracy will enforce these constraints on specific development through administrative review procedures already in place.

4.3.7 One procedure is the IMP Project Approval Form. This form must be filed and approved before the start of any building project at DDJC-Tracy. The approval of the IMP Project Approval Form requires a comparison of the building site with the constraints outlined in the IMP Addendum, and notification of the proposed activities to all signatories to the ROD. The IMP Project Approval Form serves as the document for communicating any construction constraints

to the appropriate offices. Any components of the proposed project that are inconsistent with the constraints at the site will result in the disapproval of the project unless the requester makes appropriate modifications to the building plans. The DDJC-Tracy Facility Engineer is responsible for the final approval of building projects through this review process.

4.3.8 Any future land use changes for DSERTS 72 will require characterization and environmental assessment in accordance with Army Regulation (AR) 200-1, AR 200-2, and AR 415-15. These procedures require DDJC-Tracy to consult the Administrative Record and recharacterize the DSERTS 72 site before the specified property on the depot can be used for a nonindustrial purpose.

4.3.9 Nonclosure transfers of U.S. Department of Defense (DoD) property are guided by community input on land use, as provided for by the local government land use planning agency. In the event that no community land use plan is available at the time of property transfer, DoD will consider a range of reasonably anticipated future land uses in the transfer process. These assumptions allow the DoD (in conjunction with regulatory agencies) to determine the need for further future institutional controls. Environmental process requirements and restrictions (including institutional controls) at installations subject to transfer are described in 42 U.S. Code Section 9620, et seq., (CERCLA 120), Paragraph (h). This statute establishes hazardous substance notification and deed content requirements. 40 CFR Section 373 et seq. establishes the regulatory notification and reporting requirements. These statutes require an environmental baseline survey (EBS) and a finding of suitability to transfer (FOST) prior to the transfer of properties subject to the NCP.

4.3.10 The EBS is a thorough review and compilation of environmental records and other activities related to the environmental condition of the property at the time of the EBS. It provides notification of storage, release, or disposal of hazardous substances, as required by CERCLA, and supports the preparation of the FOST. The preparation of the EBS includes regulatory review and coordination.

4.3.11 The DoD Component Disposal Agent will ensure that the FOST and other transfer documents, along with the specific land use control strategy or plan for the subject real property (i.e., DSERTS 72), reflect the use restrictions and enforcement mechanisms specified in the remedial decision document. The transfer document will also include a description of the industrial use that was assumed in developing the remedy and making the remedial decision in the ROD Amendment. The DoD Component Disposal Agent will also ensure the application of institutional controls and other layered implementation and enforcement mechanisms appropriate to the jurisdiction where the property is located. These mechanisms must be in place prior to the transfer or must be put in place by the transferee as a condition of the transfer. Examples of layered implementation and enforcement mechanisms include real estate mechanisms, deed restrictions, easements, inspections or monitoring, zoning, and state land use control registry.

4.3.12 Prior to the preparation of a FOST for DSERTS 72, the regulatory agencies will be notified of the intent to initiate the FOST process. The preparation of the FOST will also include regulatory review and coordination and public review and notification.

4.3.13 The DoD expects the transferee and subsequent owners to abide by the restrictions stated in the transfer documents and will work with all appropriate federal, state, and local agencies and prospective property owners to ensure the ongoing effectiveness of institutional controls. If the DoD becomes aware of action or inaction by any future owner that causes or threatens a release or results in the ineffective performance of the remedy, DoD reserves the right to perform any additional cleanup necessary to protect human health and the environment. The DoD also reserves the right to recover the costs of such cleanup from that owner under the terms of the transfer document or other authority.

4.4 Evaluation of Remedial Alternatives

Implementation of institutional controls to protect human health and the environment constitutes a remedy, with respect to site management. A potential remedy and a no-action alternative must undergo a comparative analysis in the context of the nine criteria specified in the NCP.

4.4.1 Overall Protection of Human Health and the Environment

Soil at the DSERTS 72 site contains concentrations of several COPCs at concentrations that might pose a risk to human health; the DSERTS 72 site, however, is not a potential habitat for ecological receptors (Montgomery Watson, 1997b). The COPCs were evaluated in a screening-level human health risk assessment, which concluded that there would not be a risk to health of industrial- or construction-worker receptors, if the land were to remain in industrial use (URS, 2001). The LUC alternative would maintain the industrial use of the site and provide a formal review process if a change in land use were to be proposed. The no-action alternative would not ensure a continuation of the industrial land use, nor would it provide a regulatory mechanism for review of proposed changes in land use. Therefore, the LUC alternative ensures the overall protection of human health and the environment.

4.4.2 Compliance with ARARs

The NCP permits nonresidential land use assumptions to be considered when selecting cleanup levels and remedies as long as the selected remedies are protective of human health and the environment. In that institutional controls are the preferred remedy for DSERTS 72 to prevent unacceptable risks to human health associated with contamination remaining at the site, the LUC alternative is compliant with the NCP as an ARAR. The no-action alternative would not ensure protection of human health and would, therefore, not be compliant with the NCP as an ARAR.

4.4.3 Long-Term Effectiveness

The LUC alternative provides for the long-term effectiveness of the selected remedy, through the requirements for an EBS and a FOST, prior to any transfer of property subject to the NCP. The no-action alternative would not have a requirement for review prior to transfer, and would not ensure the long-term protection of human health.

4.4.4 Reduction of Toxicity, Mobility, or Volume through Treatment

Neither the LUC alternative nor the no-action alternative includes treatment.

4.4.5 Short-Term Effectiveness

Neither the LUC alternative nor the no-action alternative are expected to differ with respect to short-term effectiveness. Land use at the site is unlikely to change in the short term (on the order of months).

4.4.6 Implementability

Because the intention of DDJC-Tracy is to maintain the industrial land use at the DSERTS 72 site, the LUC alternative is readily implementable. The no-action alternative is also readily implementable.

4.4.7 Cost

Neither the LUC alternative nor the no-action alternative are anticipated to incur incremental costs for site management. Current and anticipated future conditions at the site are to maintain the industrial land use.

4.4.8 State and Community Acceptance

The State of California is expected to accept the LUC alternative. As the no-action alternative does not ensure the protection of human health, it is unlikely to be acceptable to the state or the community.

4.5 Selected Remedy

The LUC alternative is the selected remedy for the DSERTS 72 site. This alternative would ensure the long-term protection of human health and comply with appropriate regulations.

4.6 Statutory Determination

The required institutional controls for DSERTS 72 meet the statutory requirements of CERCLA Section 121. Compliance with statutory requirements is documented in Table 4-2.

Table 4-2. Compliance Factors for Recommended Alternative at DSERTS 72

Statutory Requirement	DSERTS 72 Remedy Compliance
Protection of human health and the environment	Risk for current land use is below thresholds for carcinogenic and noncarcinogenic risk. No threats to the environment were identified. LUCs ensure continued protection of human health and the environment
Compliance with ARARs	The selected remedy complies with all federal and state ARARs.
Cost effectiveness	The selected remedy is cost effective.
Use of permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable	The selected remedy uses permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.
Preference for treatment to reduce toxicity, mobility, or volume as a principal element	Given the absence of significant toxicity under current land use, no treatment is warranted.

ARAR = applicable or relevant and appropriate requirement
DSERTS = Defense Site Environmental Reporting and Tracking System
LUC = land use control

5.0 AGENCY COMMENTS

5.1 Comments received from regulatory agencies on 16 January 2002 on the draft final amendment to the DDJC-Tracy ROD are included in Appendix B. Responses to these comments are also included in Appendix B.

5.2 In comments from the U.S. EPA and DTSC received on the draft final Amendment, the agencies did not approve language used in the draft final ROD Amendment for the establishment of LUCs. U.S. EPA and DTSC each provided model text for establishment of LUCs to be included in a revised version of the DDJC-Tracy ROD Amendment. However, the model text provided by the agencies was not accepted by DLA, and DDJC responded on 6 February 2002 with alternative language to be included in the ROD Amendment. This alternative language was subsequently not accepted by the regulatory agencies, and the decision was made to wait for resolution of the LUC policy dispute at the national level. In the spring of 2003, DDJC and U.S. EPA received indication that individual sites could prepare text for the establishment of LUCs. New LUC language was developed by U.S. EPA in summer of 2003 and has been incorporated into the revised draft final ROD Amendment in Sections 2.3.6 through 2.3.9 (SWMU 4) and Sections 4.3.4 through 4.3.7 (DSERTS 72).

5.3 Agency comments and DLA responses to the revised draft final ROD amendment, submitted on 25 September 2003, are also incorporated into this final document as part of Appendix B.

6.0 PUBLIC PARTICIPATION COMPLIANCE

6.1 The DDJC-Tracy ROD Amendment is a contributory document to the site's Administrative Record and was developed in accordance with applicable federal and state laws, regulations, and codes, including CERCLA, as amended by SARA, and, to the extent practicable, the NCP.

6.2 The preparation, publication, and presentation of a Proposed Plan are central components of complying with public participation requirements of CERCLA. The approved final Proposed Plan for this ROD Amendment is included in Appendix C.

6.3 Following public release of the draft final ROD Amendment, a public meeting was held on 17 January 2002 to present the Proposed Plan. Public comments were received and are included in Appendix B. Responses to these comments are also included in Appendix B. The review period by the public of the Proposed Plan was extended by one month, and a Technical Review Committee meeting was held on 11 February 2002. No further comments were received from the public.

7.0 REFERENCES

Montgomery Watson, 1996. *DDRW-Tracy, California, Final Explanation of Significant Differences*. January.

Montgomery Watson, 1997a. *Comprehensive Remedial Investigation/Feasibility Study* (RI/FS). Final. Prepared for U.S. Army Corps of Engineers, Huntsville, Alabama.

Montgomery Watson, 1997b. Comprehensive Site-Wide Baseline Risk Assessment, Appendix R to the *DDRW-Tracy Comprehensive RI/FS*. Final. November.

Montgomery Watson, 1997c. *Comprehensive Site-Wide Proposed Plan*. Final. November.

Radian International, 1998. *Sitewide Comprehensive Record of Decision*. Final. Prepared for U.S. Army Corps of Engineers, Huntsville, Alabama. April.

Radian International, 2000. *Overland Flow Pilot-Scale Study Report*. Final. March.

Radian International, 2001. *Explanation of Significant Differences to the Selected Remedies in the ROD for SWMUs 2, 3, 7, and 33, Building 30 Drum Storage Area, and the Northern Depot Soils Area*. Revised Draft Final. Prepared for U.S. Army Corps of Engineers, Huntsville, Alabama. June.

URS, 2001a. *Baseline Ecological Risk Assessment, SWMU 4*. Revised Final. Prepared for U.S. Army Corps of Engineers, Huntsville, Alabama. March.

URS, 2001b. *No Further Response Action Planned for Defense Site Environmental Reporting and Tracking System 72*. Final. Prepared for U.S. Army Corps of Engineers, Huntsville, Alabama. February.

URS, 2001c. *DDJC-Tracy, Water Management Report*, Version 1.0. Draft Final. Prepared for U.S. Army Corps of Engineers, Huntsville, Alabama. August.

URS, 2003a. *DDJC-Tracy Full-Scale Overland Flow Report*. July.

URS, 2003b. *DDJC-Tracy 2003 Explanation of Significant Differences to the Site-Wide Comprehensive ROD.* Draft. October.

URS, 2003c. *DDJC-Tracy 2003 Annual Groundwater Monitoring Report.* Draft. December.

U.S. EPA Region 9, 1991. Federal Facilities Agreement for Defense Distribution Region West-Tracy. Effective Date: June 27.

U.S. EPA, 1995. *Land Use in the CERCLA Remedy Selection Process.* U.S. EPA Directive. 25 May.

U.S. EPA, 1999. *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents.* EPA 540-R-98-031. July.

U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), 1980. *Installation Assessment of Defense Depot, Tracy, California*. Report No. 181. October.

Woodward-Clyde Consultants, 1993. *Operable Unit No. 1, Record of Decision, Defense Distribution Region West-Tracy, California*. Final. August.

APPENDIX A

Cost Estimation Tables

Table A-1. Alternative 3 for SWMU 4: Estimated Costs of Excavation (to 12 inches below ground surface), Dewatering, and Class II Disposal for Sediment from SWMU 4

	Quantity	Unit	Unit Cost	Total Cost ($)
Direct Capital Costs				
Sediment Excavation and Dewatering				
Engineering Oversight	200	hr	$135	$27,000
Mobilization & Demobilization	1	lump sum	$1,050	$10,500
Site Preparation	1	lump sum	$1,050	$10,500
Excavation	10,768	ton	$32	$344,576
Clean Backfill	1,139	cubic yard	$10	$11,390
Sediment Trap/Weir	1	lump sum	$32,500	$32,500
Site Restoration	1	unit	$62,500	$62,500
Post-excavation Sampling				
Sampling				
Personnel	120	hr	$70	$8,400
Sampling Material	1	lump sum	$1,000	$1,000
Analyses	80	sample	$320	$25,600
Class II Disposal Facility				
Pre-disposal Lab Analytical & Waste-Sampling	10	sample	$850	$8,500
Personnel	12	hr	$70	$8,400
Sampling Material	1	lump sum	$600	$600
Disposal	10,768	ton	$28	$301,504
Closure Report	40	hr	$80	$3,200
		Total direct capital cost (DCC)		**$843,180**
Indirect Capital Costs				
Engineering Design Services			6% of DCC	$50,591
Office Engineering During Construction			4% of DCC	$33,727
Non-Design Engineering			2% of DCC	$16,864
Construction Management			10% of DCC	$84,318
Contingency			30% of DCC	$252,954
Contract Administration			17% of DCC	$143,341
Contractor's Overhead and Profit			20% of DCC	$168,636
			Total Indirect Capital Cost	**$750,431**
			Total Capital Requirement	**$1,593,611**
Present Worth				
Interest Rate			6%	
Years			2 years	
Interest			Total	$172,877
				$1,766,488

Table A-1. (Continued)

		Quantity	Unit	Unit Cost	Total Cost ($)
Monitoring Costs[a]					
Analytical Testing		1	Lump Sum	$8,400	$8,400
Labor[b]		1	Lump Sum	$13,650	$13,650
			Total Monitoring Cost	**$20,700**	**$22,050**
Present Worth					
	Years			2 years	
	Interest Rate			6%	
	Interest			Total	$2,725
				Year 2004 Cost	**$24,775**
				Total Year 2004 Cost	**$1,791,263**

[a] Groundwater monitoring is included in the Well Monitoring Program, which will continue at DDJC-Tracy post-SWMU 4 closure. Costs shown reflect the 2 years of pre-closure monitoring activities.

[b] Labor costs include sample collection, data validation, and report development. Results are reported as part of the Annual Monitoring Program documentation for DDJC-Tracy.

Table A-2. Alternative 3A for SWMU 4: Estimated Costs of Activities Associated with Installation of the Overflow Weir (Sediment Trap) at SWMU 4

	Quantity	Unit	Unit Cost	Total Cost ($)
Direct Capital Costs				
Sediment Excavation/Dewatering				
Engineering Oversight	20	hr	$135	$2,700
Mobilization & Demobilization	1	lump sum	$1,050	$1,050
Sediment Trap/Weir	1	lump sum	$30,000	$30,000
Site Restoration	1	unit	$2,500	$2,500
Closure Report	40	hr	$80	$3,200
			Total direct capital cost (DCC)	**$39,450**
Indirect Capital Costs				
Engineering Design Services			6% of DCC	$2,367
Office Engineering During Construction			4% of DCC	$1,578
Non-Design Engineering			2% of DCC	$789
Construction Management			10% of DCC	$3,945
Contingency			30% of DCC	$11,835
Contract Administration			17% of DCC	$6,707
Contractor's Overhead and Profit			20% of DCC	$7,890
			Total Indirect Capital Cost	**$35,111**
			Total Capital Requirement	**$74,561**
Present Worth				
Years			2 years	
Interest Rate			6%	
Interest			Total	$9,216
				$83,777
Monitoring Costs[a]				
Analytical Testing	1	Lump Sum	$8,400	$8,400
Labor[b]	1	Lump Sum	$13,650	$13,650
		Total Monitoring Cost	**$22,050**	**$22,050**

Table A-2. (Continued)

		Quantity	Unit	Unit Cost	Total Cost ($)
Present Worth					
	Years			2 years	
	Interest Rate			6%	
	Interest			Total	$2,725
				Year 2002 Cost	**$24,775**
				Total Year 2002 Cost	**$108,552**

[a] Groundwater monitoring is included in the Well Monitoring Program, which will continue at DDJC-Tracy post-SWMU 4 closure. Costs shown reflect the 2 years of pre-closure monitoring activities.

[b] Labor costs include sample collection, data validation, and report development. Results are reported as part of the Annual Monitoring Program documentation for DDJC-Tracy.

Table A-3. OU 1: Estimated Costs, Groundwater Extraction and Treatment, DDJC-Tracy

	Quantity	Unit	Unit Cost	Total Cost ($)
Total Capital Requirement, VOCs Treatment[h]				$3,324,400
Total Present Worth, VOCs Treatment[h]				$9,509,500
Total Capital Requirement, Dieldrin Treatment[h]				$642,100
Total Present Worth, Dieldrin Treatment[h]				$2,528,000
Total Present Worth[h]				$12,037,500
Estimated Costs, Overland Flow Scale-Up				
Direct Capital Costs				
Scale-Up Study				
Study Planning	1	lump sum	$20,000	$20,000
Equipment Purchase or Rental[a,b]	1	lump sum	$98,000	$98,000
Equipment Installation[a,b]	1	lump sum	$6,200	$6,200
Site Preparation and Irrigation-System Re-routing	1	lump sum	$9,350	$9,350
			Total direct capital cost (DCC)	**$133,550**
Indirect Capital Costs				
Engineering Design Services			6% of DCC	$8,013
Office Engineering During Construction			4% of DCC	$5,342
Non-Design Engineering			2% of DCC	$2,671
Construction Management			10% of DCC	$13,355
Contingency			30% of DCC	$40,065
Contract Administration			17% of DCC	22,704
Contractor's Overhead and Profit			20% of DCC	$26,710
			Total Indirect Capital Cost	**$118,860**
			Total Capital Requirement	**$252,410**

Table A-3. (Continued)

	Quantity	Unit	Unit Cost	Total Cost ($)
Maintenance and Operation Costs[c]				
Maintenance				
Chemical Control of Vegetation[d]	1	lump sum	$4,400	$4,400
Other Vegetation Control[e]	1	lump sum	$14,000	$14,000
Monitoring				
Analytical testing[f]	1	lump sum	$1,580	$1,580
Personnel[g]	246	hour	$60	$14,760
		Total Maintenance and Operation Cost		$34,740
Present Worth[c]				
Years			30 years	
Interest Rate			6%	
Interest			Total	**$506,882**
			Year 2004 Cost	**$759,292**
TOTAL SYSTEM PRESENT WORTH				**$12,796,792**

[a] Equipment includes pipes, fittings, isolation valves, flow control valves, structural materials, evaporation pan, flow meters, and gated pipe.
[b] Based on actual costs for Overland Flow system expansion by URS, 2002-2003.
[c] Present-worth cost for 30 years of maintenance and monitoring at 6% interest.
[d] Cost includes spray herbicide, weed spray, and labor
[e] Includes weed-abatement and plowing
[f] For nutrients
[g] Includes one-year cost for labor to read meter, based on a 4-hr/wk requirement
[h] Source: DDJC-Tracy Site-Wide ROD (Radian International, 1998), Table 9-3

APPENDIX B

Regulatory Agency and Public Comments and Responses to Comments

U. S. ARMY ENGINEER DIVISION HUNTSVILLE

CORPS OF ENGINEERS

DESIGN REVIEW COMMENTS

PROJECT: Draft Final Amendment to the Sitewide Comprehensive ROD, DDJC-Tracy

■ SITE DEV & GEO	☐ MECHANICAL	☐ SAFETY	☐ SYSTEMS ENG	REVIEW
☐ ENVIR PROT& UTIL	☐ MFG TECHNOLOGY	☐ ADV TECH	☐ VALUE ENG	DATE: 17 January 2002
☐ ARCHITECTURAL	☐ ELECTRICAL	☐ ESTIMATING	☐ OTHER	NAME: Various People from Public Meeting
☐ STRUCTURAL	☐ INST & CONTROLS	☐ SPECIFICATIONS		

ITEM	DRAWING NO. OR REFERENCE	COMMENT	ACTION
		Comments have been paraphrased from the verbatim transcript of the January 2002 public meeting.	
1.		MR. HIRAM SIBLEY: Expressed concern that the overland flow proposal will send water high in salts and minerals into the Old River, thereby impacting downstream farming operations. Suggested that this water first be allowed to settle out in big ponds. Asked DDJC to test the treated groundwater prior to discharge to the West Side Irrigation District. Asked DDJC to identify another means of disposing the treated groundwater.	(A) The option of discharging the treated groundwater to the West Side Irrigation District would have to be approved by the Regional Water Quality Control Board and an NPDES permit would have to be obtained. The permit would establish the maximum levels of constituents in the treated groundwater that could be discharged by DDJC. The process of obtaining an NPDES permit is like the ROD Amendment process, also open to public review, comment, and input. However, as stated in the ROD Amendment, that option is a last resort behind subsurface discharging and overland flow.

ACTION CODES
A - ACCEPTED/CONCUR
D - ACTION DEFERRED
W - WITHDRAWN
N - NON-CONCUR
VE - VE POTENTIAL/VEP ATTACHED

U. S. ARMY ENGINEER DIVISION HUNTSVILLE

CORPS OF ENGINEERS

DESIGN REVIEW COMMENTS

PROJECT Draft Final Amendment to the Sitewide Comprehensive ROD, DDJC-Tracy

■ SITE DEV & GEO	☐ MECHANICAL	☐ SAFETY	☐ SYSTEMS ENG	REVIEW
☐ ENVIR PROT& UTIL	☐ MFG TECHNOLOGY	☐ ADV TECH	☐ VALUE ENG	DATE 17 January 2002
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ITEM	DRAWING NO. OR REFERENCE	COMMENT	ACTION
2.		MR. PHIL MARTIN: Asserted that DDJC may be planning to allow a portion of the plume migrating east of Banta Road to continue to migrate without treatment.	(N) Treatment of contaminated water is the primary remedy specified in the OU 1 ROD. Overland flow is being implemented to increase the capacity of the treatment plants so groundwater associated with the plume can be extracted and treated to reduce migration and decrease contamination. However, an Explanation of Significant Differences to the OU1 ROD, published in 1996 and the Site-Wide Comprehensive ROD, produced in 1998, modified the original remedy to include natural attenuation for the portion of the plume east of South Banta Road. While no measures have been implemented or are planned to contain this small portion of the plume, the eastern edge of the Depot continues to be monitored to see if further action in the future may be warranted.
3.		MS. DEANA MARIANI: Asked for clarification re whether groundwater contamination from other sources has cross-contaminated the plumes from DDJC; asked that actions be taken to prevent any cross-contamination.	(N) There is no evidence from the annual ground-water monitoring program that cross-contamination has occurred from other sources. Monitoring wells have been installed downgradient to the northeast and east of the DDJC-Tracy Depot and Annex to the extent possible. Due to the difficulty the U.S. Army Corps of Engineers has experienced recently in obtaining real estate agreements with private property owners, installation of additional monitoring wells on private property is not currently being planned.

ACTION CODES
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D - ACTION DEFERRED
W - WITHDRAWN
N - NON-CONCUR
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U. S. ARMY ENGINEER DIVISION HUNTSVILLE

CORPS OF ENGINEERS

DESIGN REVIEW COMMENTS

PROJECT Draft Final Amendment to the Sitewide Comprehensive ROD, DDJC-Tracy

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☐ STRUCTURAL	☐ INST & CONTROLS	☐ SPECIFICATIONS		

ITEM	DRAWING NO. OR REFERENCE	COMMENT	ACTION
4.		MR. PHIL MARTIN: Stated that it's premature to apply for an NPDES permit, because the overland flow studies haven't been completed. Recommended eliminating the option of surface discharge and asked DDJC to continue to search for an on-site discharge solution.	(N) An NPDES permit has not been obtained for surface water discharge. The permit would establish the maximum levels of constituents in the treated groundwater that could be discharged by DDJC. The process of obtaining an NPDES permit is like the ROD Amendment process, also open to public review, comment, and input. The discharge of treated groundwater to the West Side Irrigation District is a last resort option, behind subsurface discharging and overland flow. The ROD Amendment text emphasizes this point in Section 3.3.2.
5.		MR. PHIL MARTIN: Stated that the ROD Amendment and Proposed Plan should have been discussed in advance with the DDJC-Tracy Technical Review Committee. Asked that the Proposed Plan public comment period be extended through the time of the next Technical Review Committee meeting, and that comments made at that time be considered as formal comments on the proposed ROD Amendment.	(A) The review period was extended by one month and a TRC meeting was held on 11 February 2002 to further discuss the ROD Amendment. No further comments were received from the public.
6.		MR. PHIL MARTIN: Asked for more information on the alternatives that were considered in addition to overland flow.	(A) The discussion of alternatives is expanded in Section 3.3 of the ROD Amendment.
7.		MR. PHIL MARTIN: How can you accurately estimate the costs of overland flow when the study is incomplete?	(A) Estimated costs for overland flow are based on costs originally calculated for the full-scale overland flow study and are consistent with costs of overland flow studies conducted at other sites, including the pilot-scale studies conducted at DDJC-Tracy.

ACTION CODES
A - ACCEPTED/CONCUR
D - ACTION DEFERRED
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U. S. ARMY ENGINEER DIVISION HUNTSVILLE

CORPS OF ENGINEERS

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☐ STRUCTURAL	☐ INST & CONTROLS	☐ SPECIFICATIONS		

ITEM	DRAWING NO. OR REFERENCE	COMMENT	ACTION
8.		MR. PHIL MARTIN: Who or what process decides on how or if the comments, questions, or suggestions are implemented?	(A) All comments and questions received pertaining to this ROD Amendment are addressed and included in the final ROD. Responses to agency and public comments are included in Appendix B of this ROD Amendment. For other technical comments that suggest changes to environmental operational activities at DDJC-Tracy, DDJC and the U.S. Army Corps of Engineers review the suggestions raised by the agencies and the public and consider or approve them for implementation.
9.		MR. SIBLEY: Stated his belief that it's premature to apply for a discharge permit before other alternatives have been considered. Asked DDJC to investigate whether other agencies might be willing to accept the treated groundwater, and perhaps even pay to receive it. Asked whether there is a way to remove salts from the water prior to discharge.	(D) An NPDES permit has not been obtained. The discharge of treated groundwater to the West Side Irrigation District is a last resort option, behind subsurface discharging and overland flow. DDJC-FA will eventually have to pay a fee if the depot chooses to discharge the treated groundwater. Depending on the amount of that fee, DDJC-Tracy may choose not to discharge. Salts can be removed from ground-water by processes such as distillation, flash evaporation, reverse osmosis ion-exchange, or ultra-filtration. However, all of these processes are energy-intensive and costly. Because these salts occur naturally in the groundwater, DDJC-FA presently does not intend to remove these minerals from the groundwater.

ACTION CODES
A - ACCEPTED/CONCUR
D - ACTION DEFERRED
W - WITHDRAWN
N - NON-CONCUR
VE - VE POTENTIAL/VEP ATTACHED

U. S. ARMY ENGINEER DIVISION HUNTSVILLE — CORPS OF ENGINEERS

DESIGN REVIEW COMMENTS

PROJECT: Amendment to the Sitewide Comprehensive ROD, DDJC-Tracy

☐ SITE DEV & GEO ☐ MECHANICAL ☐ SAFETY ☐ SYSTEMS ENG
■ ENVIR PROT& UTIL ☐ MFG TECHNOLOGY ☐ ADV TECH ☐ VALUE ENG
☐ ARCHITECTURAL ☐ ELECTRICAL ☐ ESTIMATING ☐ OTHER
☐ STRUCTURAL ☐ INST & CONTROLS ☐ SPECIFICATIONS

REVIEW: Revised Draft Final
DATE: 19 November 2003
NAME: Peter MacNicholl, Anthony Landis

ITEM	DRAWING NO. OR REFERENCE	COMMENT	ACTION
1.	Page 2-6, Section 2.3.6, fourth bullet	This section indicates that periodic monitoring will be conducted at sites with Institutional Controls. Please add additional language stating the scope and frequency of monitoring inspections. These inspections should be conducted annually at a minimum.	(A) For SWMU 4, there are no risks above threshold criteria under the current land use scenario. Annual monitoring will include: • Preparing a list of personnel primarily responsible for planning and implementing any potential change in land use. • Contacting these people to ensure they have a copy of the IMP addendum. • Documenting that no change in land use has occurred. • Initiating contact with all parties to the FFA if the annual monitoring effort reveals a change in land use.
2.	Page 2-6, Section 2.3.7, first sentence	Please add DTSC to this sentence since DTSC also has a role in the enforcement of the Land Use Covenants.	(A) An additional sentence will be added to indicate that DTSC, U.S. EPA, and CVRWQCB also monitor activities at LUC sites to ensure that LUC requirements are met.
3.	Page 2-7, Section 2.4.2	This section needs to include DTSC's new regulation, section 67391.1 of the Title 22 California Code of Regulations requiring land use covenants which became final in April 2003.	(A) Section 67391 will be added to both Section 2.4.2 and 4.4.2.

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U. S. ARMY ENGINEER DIVISION HUNTSVILLE — CORPS OF ENGINEERS

DESIGN REVIEW COMMENTS

PROJECT: Amendment to the Sitewide Comprehensive ROD, DDJC-Tracy

■ SITE DEV & GEO	☐ MECHANICAL	☐ SAFETY	☐ SYSTEMS ENG
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☐ STRUCTURAL	☐ INST & CONTROLS	☐ SPECIFICATIONS	

REVIEW: Revised Draft Final
DATE: 19 November 2003
NAME: Peter MacNicholl, Anthony Landis

ITEM	DRAWING NO. OR REFERENCE	COMMENT	ACTION
4.	Page 2-7, Section 2.3.8	The paragraph discusses how an addendum to the IMP must be prepared to place constraints ensuring that a specific type of land use, such as residential development, does not occur at DDJC-Tracy in the future. This addendum will be stored with the IMP and will include a map showing the location of the LUC areas at which specific development is prohibited. Since the ROD Amendment is a decision type document, it would be beneficial if the new IMP Addendum would be incorporated into the ROD Amendment as an Appendix. Then, if any LUC information needs to be revisited, it would be readily available for any of the regulatory personnel without having to travel to the Facility Engineer's office or request a separate copy. Please insert the IMP Addendum into the ROD Amendment as an Appendix.	(D) The IMP Addendum will address all sites with LUCs at DDJC Tracy, not just SWMU 4. It is proposed that the IMP Addendum be incorporated into the ESD (URS, 2003) instead of the ROD Amendment. This offers the following two benefits: • It keeps the ROD Amendment closer to its scheduled completion date. • The ESD already addresses LUCs for all sites. This approach would keep the information on LUCs in one location for the entire depot.

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DESIGN REVIEW COMMENTS

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■ SITE DEV & GEO	☐ MECHANICAL	☐ SAFETY	☐ SYSTEMS ENG	REVIEW: Revised Draft Final
☐ ENVIR PROT& UTIL	☐ MFG TECHNOLOGY	☐ ADV TECH	☐ VALUE ENG	DATE: 19 November 2003
☐ ARCHITECTURAL	☐ ELECTRICAL	☐ ESTIMATING	☐ OTHER	NAME: Peter MacNicholl, Anthony Landis
☐ STRUCTURAL	☐ INST & CONTROLS	☐ SPECIFICATIONS		

ITEM	DRAWING NO. OR REFERENCE	COMMENT	ACTION
5.	Page 4-4, Section 4.3.4	Please list the performance measures, specifically which types of activities are prohibited in this area to protect human health and the environment. For example, if construction activities producing dust are prohibited in the area to protect a construction worker, then state this in the report.	(A) As noted in Paragraph 4.1.4, soil left in place does not pose an unacceptable level of risk to construction workers. A change in land use (i.e., residential development) would trigger the need for additional risk assessment and, possibly, additional controls. Annual monitoring for DSERTS 72 will be clarified to include: • Preparing a list of personnel primarily responsible for planning and implementing any potential change in land use; • Contacting these people to ensure they have a copy of the IMP addendum, as incorporated in the ESD; • Documenting that no change in land use has occurred; and • Initiating contact with all parties to the FFA if the annual monitoring effort reveals a change in land use.

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U. S. ARMY ENGINEER DIVISION HUNTSVILLE — CORPS OF ENGINEERS

DESIGN REVIEW COMMENTS

PROJECT: Amendment to the Sitewide Comprehensive ROD, DDJC-Tracy

■ SITE DEV & GEO	☐ MECHANICAL	☐ SAFETY	☐ SYSTEMS ENG	REVIEW: Revised Draft Final
☐ ENVIR PROT& UTIL	☐ MFG TECHNOLOGY	☐ ADV TECH	☐ VALUE ENG	DATE: 19 November 2003
☐ ARCHITECTURAL	☐ ELECTRICAL	☐ ESTIMATING	☐ OTHER	NAME: Peter MacNicholl, Anthony Landis
☐ STRUCTURAL	☐ INST & CONTROLS	☐ SPECIFICATIONS		

ITEM	DRAWING NO. OR REFERENCE	COMMENT	ACTION
6.		In July 2003, Treatment Plant #1 (TP#1) was shut down to install a series of Granular Activated Carbon (GAC) vessels to help remediate the dieldrin and various pesticides residing in the groundwater at DDJC-Tracy. Although the report mentions the need to remediate the pesticides in the aquifer, it does not discuss the newly installed GAC vessels or elimination of the air-stripper at TP#1. Since the ROD Amendment encompasses OU-1 issues, then it should account for the most recent addition to the groundwater treatment system. Please update the appropriate text and figures to account for the new changes in the treatment plant design.	(A) The text and figures will be updated to reflect current site conditions.
7.	Pages 3-3/3-9, Figures 3-1/3-2	On both figures there appears to be an extraction well (EW) represented by a green dot between CD-1 and IG-1. Please identify the EW in both figures. If it is not an EW, but rather a junction point showing where the line splits in two directions, then show this with another symbol that has not been defined in the legend.	(A) There is no extraction well between the CD-1 and the IG-1. The symbol will be removed for clarification.

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U. S. ARMY ENGINEER DIVISION HUNTSVILLE — CORPS OF ENGINEERS

DESIGN REVIEW COMMENTS

PROJECT: Amendment to the Sitewide Comprehensive ROD, DDJC-Tracy

☐ SITE DEV & GEO ☐ MECHANICAL ☐ SAFETY ☐ SYSTEMS ENG
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☐ ARCHITECTURAL ☐ ELECTRICAL ☐ ESTIMATING ☐ OTHER
☐ STRUCTURAL ☐ INST & CONTROLS ☐ SPECIFICATIONS

REVIEW: Revised Draft Final
DATE: 24 October 2003
NAME: Michael Work (U.S. EPA)

ITEM	DRAWING NO. OR REFERENCE	COMMENT	ACTION
1.	SWMU 4		
	Section 2.2.4	This discussion could be clearer – especially the sentences that say "there was no risk when the bioavailability of lead in flesh and sediment and when the forage range were considered jointly.	(A). The text for Section 2.2.4 will be revised to improve its readability for the public. No substantive changes to the content of the section will be made.
	Section 2.3.6	The third bullet refers to existing administrative controls – please describe these.	(A) The administrative controls identified in the recent ESD (URS, 2003) will be briefly described and a reference to the ESD will be made.
	Section 2.3.9	The text says that "one" procedure is the IMP Project Approval Form. If there are others, please describe them. If not, please revise this to say "the" procedure.	(A) All procedures will be identified. A reference will be provided to the ESD (URS, 2003) for a more comprehensive discussion.
	Section 2.4.7.1	It is a little confusing to read that the results of the site-specific ecological risk assessment simultaneously indicated that no excavation is necessary, and that more excavation than originally anticipated would be necessary to significantly reduce contaminant levels. Please explain this further.	(A) The ecological risk assessment did not indicate that no excavation is necessary. It did indicate that the risk was much less significant than was estimated in the ROD. Subsequent sampling efforts further determined that the contaminants responsible for the reduced level of risk were much more widespread than the ROD assumed. The risk management decision for SWMU 4 is justified by both the reduced level of risk to ecological receptors as well as the increased cost of excavation (the result of more widespread contamination). The text in Section 2.4.7.1 will be clarified accordingly.
	Table 2-2	Please revise the statement that the selected remedy uses permanent solutions and alternative treatment technologies or resources recovery to an explanation of why such solutions/technologies are not appropriate.	(A) An explanation will be provided in the table.

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U. S. ARMY ENGINEER DIVISION HUNTSVILLE — CORPS OF ENGINEERS

DESIGN REVIEW COMMENTS

PROJECT: Amendment to the Sitewide Comprehensive ROD, DDJC-Tracy

■ SITE DEV & GEO	☐ MECHANICAL	☐ SAFETY	☐ SYSTEMS ENG	REVIEW	Revised Draft Final
☐ ENVIR PROT& UTIL	☐ MFG TECHNOLOGY	☐ ADV TECH	☐ VALUE ENG	DATE	24 October 2003
☐ ARCHITECTURAL	☐ ELECTRICAL	☐ ESTIMATING	☐ OTHER	NAME	Michael Work (U.S. EPA)
☐ STRUCTURAL	☐ INST & CONTROLS	☐ SPECIFICATIONS			

ITEM	DRAWING NO. OR REFERENCE	COMMENT	ACTION
2.	OU 1		
	Section 3.5.2.3	The 6th bullet says there may be an impact on crops "perhaps" because of boron concentrations in the water. Is there a question as to what might cause the impact on crops? If so, then monitoring for boron should not be the only suggested solution. Please clarify.	(A) The parenthetical statement will be clarified to indicate that boron may impact crops. No other chemical concentrations pose a concern.
3.	DSERTS 72		
	Executive Summary	In the Executive Summary under ES.2, the sentence should say "…do not pose an unacceptable risk to human health *or the environment*."	(A) The text will be modified as indicated.
	Section 4.3.4	The 1st bullet says include in an addendum to the IMP any specific controls required. Have such controls been identified? If so, they should be described in the ROD. If not, and specific controls are identified later, they should be included in a land use plan appended to the ROD. The 3rd bullet says maintain existing administrative controls – please describe these.	(A) The controls will be described and a reference to the ESD (URS, 2003) will be provided.
4.	Appendix B		
	Public Comments	Does the natural attenuation allow further migration of the plume, or is the plume controlled in some way? Please explain.	(A) The ESD to the OU 1 ROD (Montgomery Watson, 1996) and the Sitewide Comprehensive ROD (Radian, 1998) both allow natural attenuation of the TCE plume east of Banta Road. No measures have been implemented or planned to contain this portion of the plume. This will be stated more clearly in the response.

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U. S. ARMY ENGINEER DIVISION HUNTSVILLE

CORPS OF ENGINEERS

DESIGN REVIEW COMMENTS

PROJECT: Amendment to the Sitewide Comprehensive ROD, DDJC-Tracy

☐ SITE DEV & GEO	☐ MECHANICAL	☐ SAFETY	☐ SYSTEMS ENG	REVIEW: Revised Draft Final
☐ ENVIR PROT& UTIL	☐ MFG TECHNOLOGY	☐ ADV TECH	☐ VALUE ENG	DATE: 19 November 2003
☐ ARCHITECTURAL	☐ ELECTRICAL	☐ ESTIMATING	☐ OTHER	NAME: Marcus Pierce
☐ STRUCTURAL	☐ INST & CONTROLS	☐ SPECIFICATIONS		

ITEM	DRAWING NO. OR REFERENCE	COMMENT	ACTION
1.	14 Nov. 2003 e-mail	My only comment was on updating the tables, so I wasn't planning on submitting a formal comment letter.	(A) URS will update operational tables in the ROD with the most recent published quarterly data.

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APPENDIX C

Proposed Plan

December 2001

Defense Distribution Depot San Joaquin California, Tracy Site

Proposed Plan for Amendments to the Sitewide Comprehensive Record of Decision

INTRODUCTION TO THE PROPOSED PLAN

The Defense Logistics Agency (DLA) has prepared this **Proposed Plan** to inform the community about environmental **cleanup** plans for sites located at the Defense Distribution Depot San Joaquin California's Tracy Site (DDJC-Tracy). The Proposed Plan summarizes the environmental cleanup alternatives that were considered in a report called the *Amendment to the Sitewide Comprehensive* ***Record of Decision***. The Proposed Plan also describes the preferred **remedial** (cleanup) alternatives — that is, the cleanup methods that were found to be the most effective, based on a set of established criteria (see Figure 3 for a listing of this criteria).

DDJC-Tracy will select the final cleanup methods for the sites after considering the community's concerns. DLA and DDJC-Tracy encourage you to read this Proposed Plan, and other related environmental studies, and to make your concerns known by submitting written comments on the Proposed Plan and by attending a public meeting to be held to discuss the Proposed Plan.

* *All words in* **bold** *are defined in the glossary beginning on page 8.*

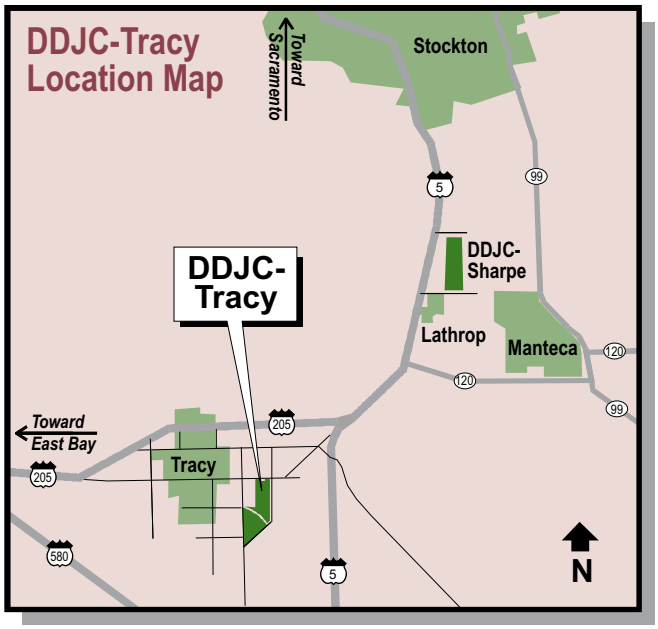


Figure 1. Location of DDJC-Tracy

OPPORTUNITIES FOR COMMUNITY INVOLVEMENT

Proposed Plan Public Comment Period and Public Meeting

A 30-day public comment period on the *Proposed Plan for Amendments to the Sitewide Comprehensive Record of Decision* will begin on December 21, 2001, and close on January 21, 2002. Written and verbal comments will be accepted during this time.

DDJC-Tracy will hold a public meeting at 7:00 p.m. on January 17, 2002 at the Tracy Community Center located at 300 East Tenth Street, Tracy, CA. At this meeting, DDJC-Tracy will present the Proposed Plan, discuss cleanup alternatives, respond to questions and receive comments.

After the close of the public comment period, DLA will provide a response to comments received and select final remedies that will be presented in the final Record of Decision (ROD) Amendment document.

The Proposed Plan represents current recommendations for specific sites at DDJC-Tracy. Additional investigations may be conducted at specific sites. Based on the results of these investigations, DLA may at a future date amend selected remedies if more appropriate remedies are developed.

All additional written comments must be submitted by January 21, 2002, to:
Defense Distribution Depot San Joaquin California, Tracy Site
Office of Command Affairs
Mr. Doug Imberi
P.O. Box 960001
Stockton, CA 95297-0002

This Proposed Plan is issued pursuant to CERCLA, Section 117(a), as amended by SARA to facilitate public participation in the selection of remedies for DDJC-Tracy.

CONTENTS OF THIS PROPOSED PLAN

OVERVIEW OF THE PROPOSED PLAN

Purpose of the Proposed Plan

The purpose of this *Proposed Plan for Amendments to the Sitewide Comprehensive Record of Decision* is to give the public an opportunity to review and comment on recommended changes to the previously published cleanup plans for certain **contaminated** sites located at Defense Distribution Depot San Joaquin California, Tracy Site (DDJC-Tracy).

Depot Background

DDJC-Tracy is located in an unincorporated area in San Joaquin County, southeast of the City of Tracy. Figure 1 shows DDJC-Tracy's regional location.

Since 1942, the federal Defense Logistics Agency has operated the site as a storage and distribution depot for the United States military services in the western U.S. and the Pacific region. From the 1940s through the 1970s, potentially hazardous materials from various operations were buried, burned, or abandoned at numerous sites at the depot.

In 1984, environmental investigations revealed that previous on-base activities were likely to have contaminated the depot's soil and **groundwater**. In 1990, the depot was placed on the federal National Priorities List, also known as the **Superfund** list. As a result, environmental activities at DDJC-Tracy are subject to the requirements of the **Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)**, as amended by the **Superfund Amendments and Reauthorization Act (SARA)**.

In 1991, DDJC-Tracy entered into an agreement, called a **Federal Facilities Agreement** (FFA), with three regulatory oversight agencies: the **U.S. Environmental Protection Agency (EPA)**, the State of California **Department of Toxic Substances Control (DTSC)**, and the State of California Water Quality Control Board, Central Valley Region (**RWQCB**). The FFA requires DDJC-Tracy to conduct environmental studies and perform cleanup activities to protect the health and safety of the community and the environment. These activities follow a certain process, in accordance with federal and state requirements. As these activities are conducted, DDJC-Tracy works closely with the regulatory oversight agencies.

The environmental study and cleanup process requires the preparation of documents that:
1) report on the results of environmental investigations, and
2) spell out the remedial actions that will be taken to safeguard human health and the environment.

These documents are available for public review at the Information Repository (IR) and **Administrative Record (AR)** located at DDJC-Tracy (see the back page for more information about the IR/AR).

Key milestones in the CERCLA Process for DDJC-Tracy are shown in the Figure 2 timeline on page 3.

continued on page 3

continued from page 2

Background of the Environmental Documents Under Consideration

In 1998, DDJC-Tracy published a document called the *Sitewide Comprehensive Record of Decision* (ROD). This ROD was published following the completion of a number of environmental studies, including a **Remedial Investigation/Feasibility Study (RI/FS)**.

The RI/FS established three primary objectives for the environmental study and cleanup program at DDJC-Tracy:

1) Protect people, plants, and animals from coming into contact with contamination;
2) Protect groundwater for beneficial uses; and
3) Comply with **applicable or relevant and appropriate requirements (ARARs),** such as state and federal environmental compliance statutes and requirements.

These objectives assure that any remedial actions undertaken at DDJC-Tracy meet the overall objective of protecting human health and the environment.

The RI identified 20 sites at DDJC-Tracy where remedial actions needed to take place, and the FS evaluated the different remedial alternatives that could be used at these sites. The FS also recommended preferred remedial alternatives for each site. These alternatives were developed in accordance with the National Contingency Plan's (NCP) criteria for evaluating remedial alternatives. Figure 3 (page 4) shows the NCP criteria used to help select the cleanup remedies for the sites.

The alternatives recommended in the FS were summarized in a Proposed Plan, which was called the *Proposed Plan for Twenty Sites*. This Proposed Plan was released to the public for comment in January 1997, and a public meeting to discuss the Proposed Plan was held on March 6, 1997. The plan described recommended remedies, provided information to the public about the actions planned at the sites, and encouraged public input. Public input is required before final decisions can be made on cleanup alternatives.

continued on page 4

Figure 2. The CERCLA Process at DDJC-Tracy

NPL Ranking and Listing

In August 1990, EPA listed DDJC-Tracy on the National Priorities List of hazardous waste sites.

IRM Implemented

Due to movement of the VOCs in groundwater, an **Interim Remedial Measure** (IRM) was implemented to contain the spread of VOC-contaminated groundwater. This system was constructed in 1991 to extract and treat VOC-contaminated groundwater.

OU 1 Identification

Operable Unit 1 (OU1) was identified in 1992 and consists of contaminated groundwater emanating from DDJC-Tracy.

Final OU 1 Record of Decision (ROD)

A ROD signed in August 1993 defined the cleanup remedy for the OU 1 groundwater plume.

Proposed Plan for Twenty Sites

Cleanup alternatives recommended in the FS were summarized in the *Proposed Plan for Twenty Sites*, which was presented to the public for comment in January 1997.

We Are Here

ROD Amendment

Draft amendments to the *Sitewide Comprehensive ROD* are summarized in this Proposed Plan. The ROD Amendment will be finalized after receipt of public comments.

Well Monitoring Program

In May 1991, a well monitoring program was established to monitor movement of **volatile organic compounds (VOCs)** in groundwater.

FFA Signed

A **Federal Facilities Agreement** (FFA) was negotiated in June 1991 and included a schedule for cleanup activities. Parties to the FFA included DDJC-Tracy, **EPA**, **DTSC**, and the Central Valley **RWQCB**.

Remedial Investigation/ Feasibility Study (RI/FS)

RI activities began in 1992 and continued through June 1995. These activities served to characterize the nature and extent of contamination at the various sites. An FS followed the investigations and identified possible cleanup alternatives and remedies.

EE/CA

An Engineering Evaluation/Cost Analysis (EE/CA) for Solid Waste Management Units (SWMU) 2, 3, and 33 was prepared in early 1996. This EE/CA evaluated cleanup alternatives for the sites.

Sitewide Comprehensive ROD

Based on comments received on the *Proposed Plan for Twenty Sites*, a *Sitewide Comprehensive ROD* was signed by DDJC-Tracy, EPA, DTSC and RWQCB in April 1998. This document selected cleanup remedies for each site.

Long-Term Cleanup

The selected remedies will be designed, implemented, and monitored to ensure effectiveness.

Figure 3. National Contingency Plan Criteria for Evaluating Remedial Alternatives

1 Overall Protection of Human Health and the Environment

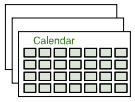
Addresses whether a remedy provides adequate protection of human health and the environment, and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

2 Compliance with Applicable or Relevant and Appropriate Requirements

Addresses whether a remedy will meet all of the ARARs and federal and state environmental guidelines and/or justifies an ARAR waiver.

3 Long-Term Effectiveness and Permanence

Refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met.



4 Reduction of Toxicity, Mobility, and Volume Through Treatment

Refers to the anticipated ability of the treatment technologies to reduce the toxicity, mobility, and volume (TMV) of the hazardous compounds present at the site.

5 Cost Evaluates the estimated capital and operation and maintenance (O&M) costs for each alternative.

6 Short-Term Effectiveness

Addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period, until cleanup goals are achieved.

7 Implementability

Refers to the technical and administrative feasibility of the remedy, including the availability of materials and services needed to implement a particular option.

8 State Acceptance

Indicates whether the state favors or objects to any of the alternatives based on the available information.

9 Community Acceptance

Indicates whether community concerns are addressed by the remedy and whether the community has a preference for a remedy. Although public comment is an important part of the final decision, DLA must balance community concerns with all the previously mentioned criteria.

continued from page 3

After DDJC-Tracy and the regulatory agencies reviewed and incorporated public comments on the Proposed Plan, DDJC-Tracy prepared the *Sitewide Comprehensive ROD*. This ROD described the selected remedial activities that DDJC-Tracy would undertake at each of the 20 sites. The regulatory agencies (EPA, DTSC and RWQCB) reviewed and approved the ROD, and it was signed in April 1998. Since that time, DDJC-Tracy has been using the ROD to guide its environmental program.

The *Sitewide Comprehensive ROD* required DDJC-Tracy to conduct certain additional investigations. As a result of these additional studies, DDJC-Tracy now has more information than was available when the ROD was signed in 1998. This new information has led to a better understanding of site conditions, and DDJC-Tracy is recommending some new remedial actions that differ from the actions listed in the ROD. For this reason, a ROD amendment is required.

The *Draft Final Amendment to the Sitewide Comprehensive Record of Decision* (referred to hereafter as the ROD Amendment) was published in November 2001. (The ROD Amendment will be published as a final document after comments have been received from the public.) This new document explains what has been learned since the *Sitewide Comprehensive ROD* (referred to hereafter as the original ROD) was published, and it recommends new remedial actions to be taken as a result of the new information.

The following sections provide details about three sites that were affected by the new information, and about the criteria that were used to develop recommendations for new remedial action alternatives at these three sites.

Figure 4 shows the location of all of the remedial action sites at DDJC-Tracy. The figure highlights two of the sites addressed in the ROD Amendment (shown in the figure as SWMU 4 and DSERTS 72). The groundwater treatment system shown in Figure 4 is part of the cleanup remedy for the third site addressed in the ROD Amendment. This third site, known as Operable Unit 1, consists of the contaminated groundwater beneath DDJC-Tracy.

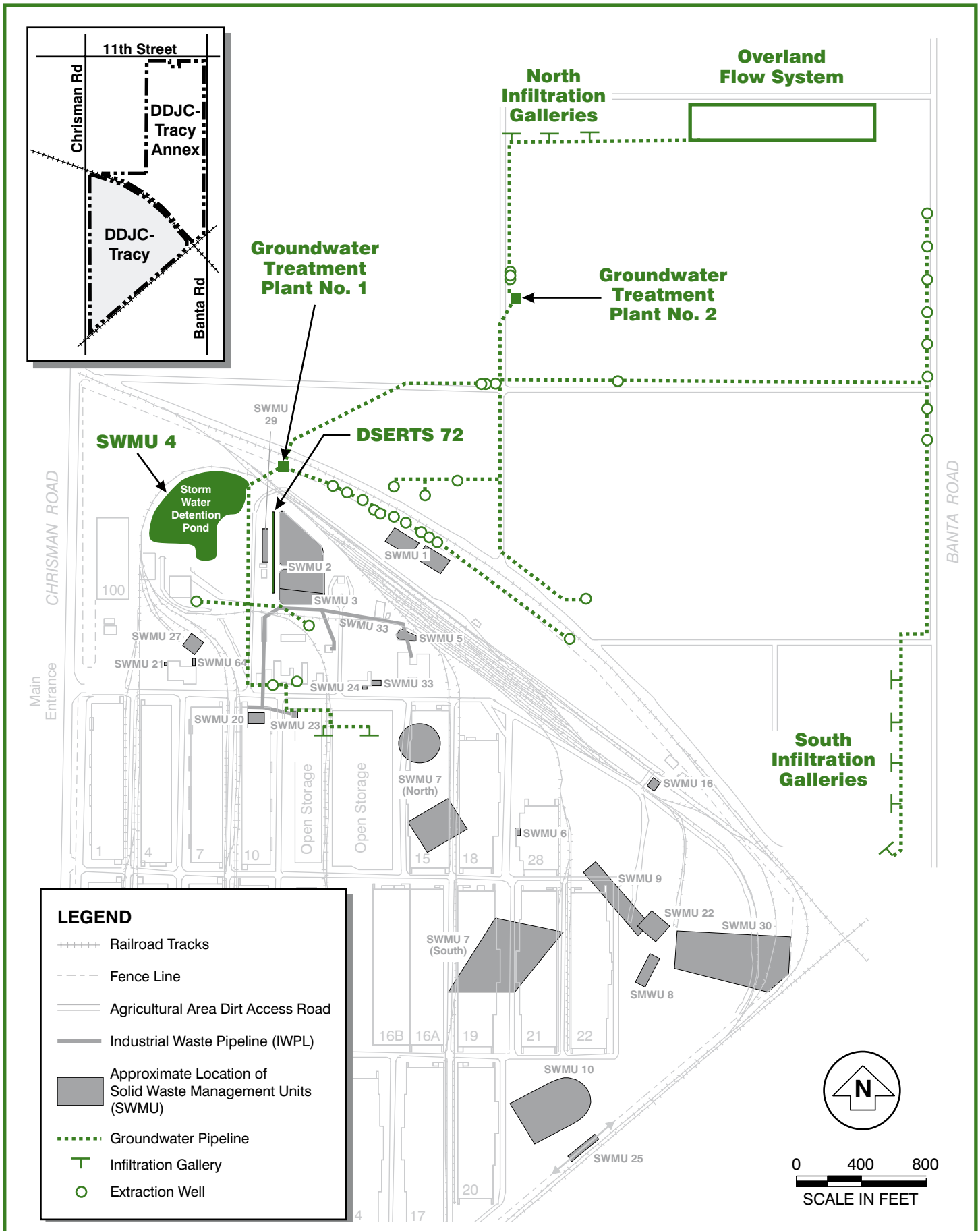


Figure 4. Location of Remedial Action Sites at DDJC-Tracy

Overview of Three Sites and Summary of the Basis for Change

The recent investigations identified three sites at DDJC-Tracy where more applicable cleanup strategies require changes to the cleanup remedies agreed to in the original ROD:

1) **Solid Waste Management Unit** (SWMU) 4 is an unlined stormwater detention pond. A *Baseline Ecological* ***Risk Assessment*** (BERA) of conditions at SWMU 4 was conducted after the original ROD was published. The BERA provides a better understanding of the potential effects of contamination on ecological receptors (such as waterfowl). The ROD amendment proposes that it is not necessary to excavate soil from SWMU 4, because the soils are not as hazardous to wildlife as was previously believed.

2) The contaminated groundwater beneath DDJC-Tracy is known as **Operable Unit** 1 (OU 1). OU 1 also includes groundwater that is moving in a northeasterly direction away from the depot. The cleanup remedy proposed in the original ROD has not been as effective as anticipated. Although the groundwater treatment plants have been effective in removing hazardous chemicals from the groundwater, the treated (cleaned) groundwater is not being reinjected into the ground as quickly as was expected. The ROD Amendment proposes discharging some of the treated groundwater to overland flow disposal plots on the DDJC-Tracy Annex property and, as necessary, to the West Side Irrigation Ditch.

3) In 1998 and 1999, a new storm drain and catch basin were constructed in an area known as Defense Site Environmental Reporting and Tracking System (DSERTS) 72. Soil was removed during construction. Analysis of the excavated soil showed that chemical contaminants were present in this soil. The soil has since been removed. The ROD amendment proposes that DSERTS 72 should be added to the list of remedial action sites at DDJC-Tracy, and that institutional controls should be implemented at DSERTS 72. The institutional controls consist of an aggregate cover, and a requirement that the land remain in industrial use. If, in the future, the site is proposed for non-industrial use, further investigations will be required. In addition, the site will be monitored.

The ROD amendment evaluated remedial alternatives that could be used at each of the three sites. These alternatives were evaluated against the NCP criteria. Following are details about the evaluation process and the cleanup alternatives recommended at each site.

SWMU 4

It is believed that in the past, rinse water from former depot operations was discharged to the unlined stormwater detention pond now known as SWMU 4. These former operations included paint-stripping, degreasing, and steam-cleaning. Chemical contaminants of concern found in the pond sediment include residues from **PCBs**, pesticides, selenium, and lead. The pesticides of concern are primarily from a trio of similarly named compounds called DDD, DDE and DDT, and are referred to collectively as DDX.

The original ROD identified the following remedies for SWMU 4:
- Continued groundwater monitoring;
- Installation of an overflow weir to prevent contaminated sediment from being discharged into the pond;
- Excavation of contaminated sediments that pose a risk to ecological **receptors**;
- Installation of a sediment trap; and
- Stormwater monitoring to ensure the overflow weir and sediment trap are effective.

The sediment excavation portion of the remedy was developed to address concerns about PCBs and DDX, which pose a potential threat to ecological receptors (including waterfowl). Excavation was not believed to be necessary to protect human health or water quality.

Sediment excavation standards presented in the ROD were developed based on a "screening-level" literature-based ecological assessment. This means that the ROD used generally available information about the impacts of the chemicals of concern, but detailed studies related to specific conditions at SWMU 4 were not performed.

After the ROD was published, a more comprehensive and site-specific *Baseline Ecological Risk Assessment* was conducted. The BERA evaluated risks to mallard ducks and great blue herons potentially exposed to PCBs, DDX, lead, and selenium at SWMU 4. Risks were evaluated using concentrations that represented central-tendency "average" exposures as well as maximum concentrations. The BERA found that mallard ducks and great blue herons are not at a significant risk from exposure to soil sediments. To protect ecological receptors, it is not necessary to excavate sediment to meet lead, selenium, PCB, and DDX standards.

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SWMU 4 (continued)

Evaluation and Selection of Preferred Alternative

The original ROD established three remedial action objectives for SWMU 4:

- Prevent the release from sediment of contaminants of concern (COCs) that could cause surface water concentrations to exceed federal Ambient Water Quality Criteria for the protection of aquatic life;
- Prevent ecological receptors from being exposed to COCs above aquatic standards for surface water; and
- Prevent ecological receptors from being exposed to COCs in sediment.

The original ROD identified the following three remedial alternatives for meeting the objectives listed above:

- Alternative 1 – No Action;
- Alternative 2 – Upstream Source Control; and
- Alternative 3 – Limited Excavation; Overflow Weir; Sediment Trap; and Stormwater Monitoring

The original ROD selected Alternative 3 as the alternative that best met the remedial action objectives.

The ROD Amendment proposes modifying Alternative 3 to remove the need for the limited excavation of sediments. The modified alternative is called Alternative 3a. Alternative 3a was evaluated against the NCP criteria listed in Figure 3, and Alternative 3a met all of these criteria. The evaluation found that although the original Alternative 3 may provide some minimal improvement in long-term effectiveness, Alternative 3a has a significantly greater short-term effectiveness and a much lower cost. For these reasons, Alternative 3a is preferred for implementation.

OU 1

The groundwater at DDJC-Tracy (known as OU 1) has been affected by various contaminants. The presence of these contaminants in groundwater is believed to be the result of past depot operations. The contaminated groundwater is present in a **plume** that is migrating off site from the depot toward the northeast. This plume of contamination is identified primarily by concentrations of certain **volatile organic compounds (VOCS)**; the VOCs of greatest concern are the cleaning solvents trichloroethylene (TCE) and tetrachloroethylene (PCE).

The original ROD selected a "pump and treat" cleanup remedy for OU 1 groundwater. This remedy consisted of groundwater extraction wells, two groundwater treatment plants that use an air stripping technique to remove VOCs, wellhead carbon treatment to remove dieldrin (a pesticide), and reinjection of the treated groundwater into injection galleries. The original ROD specified that the treated

OU 1 (continued)

groundwater would be primarily discharged via injection into shallow aquifers using the injection wells and infiltration galleries (discharge structures consisting of below-ground gravel-filled trenches) located on the main depot property.

It has not been possible to implement fully the remedy as it was intended in the ROD because the ROD significantly overestimated the capacity of the subsurface (soil and water beneath the ground's surface) to accept the treated groundwater. Although additional infiltration galleries and numerous injection wells have been installed at the site, it has not been possible to discharge sufficient water to enable the extraction wells to operate properly to contain the plumes of groundwater contaminants. For this reason, other options are necessary to supplement the subsurface discharge.

The proposed modification to the original ROD remedy is to add overland flow (surface discharge) as a supplemental discharge system.

Subsurface discharge is still preferred and will be used to the extent possible. Use of both subsurface discharge and overland flow will improve plume capture by allowing for full operation of the groundwater "pump and treat" system.

DDJC-Tracy is preparing an application for the renewal and revision of Waste Discharge Requirements (WDRs). The WDRs must be revised before DDJC-Tracy can discharge treated groundwater to the overland flow system. Also, DDJC-Tracy is preparing an application for a National Pollutant Discharge Elimination System (NPDES) permit to allow discharge of treated groundwater to the West Side Irrigation Ditch, which is maintained by the West Side Irrigation District.

The addition of a surface water discharge option would provide more operational flexibility, in case there is a decrease in the capacity of the infiltration galleries or the overland flow system. To help maintain the maximum beneficial use of treated groundwater, surface water discharge will be used only as a "last resort" option.

Evaluation and Selection of Preferred Alternative

The original ROD established three remedial action objectives for OU 1:

- Remediate the areas containing the highest level of contaminants;
- Minimize transport of the COCs; and
- Remediate COCs to the levels agreed to in the ROD.

In order to better achieve these remedial objectives, the ROD Amendment proposes modifying the selected remedy (extraction, treatment, and discharge to the subsurface) to include discharge via overland flow and potential discharge to the West Side Irrigation District.

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OU 1 (continued)

This modification and a No Action Alternative were evaluated against the NCP criteria, and the modification was found to meet these criteria. Considering the new information that was developed and the changes that have been made to the selected remedy, the DLA believes that the modified remedy is equally protective of human health and the environment, complies with federal and state requirements, and is more cost-effective than the original remedy. In addition, the revised remedy utilizes current, site-specific environmental data and analyses to the extent practicable for this site.

DSERTS 72

DSERTS 72 is a new site that was identified after the original ROD was signed. In the winter of 1998-1999, a new storm drain and catch basin were installed east of the unlined stormwater detention pond (SWMU 4). Soil excavated as a part of the storm drain installation was removed from a trench running north to south along the length of the sewage lagoons. This soil was sampled to determine whether it should be classified for use as backfill or for off-site disposal. Analytical results indicated that several contaminants of potential concern (including total petroleum hydrocarbons, various pesticides, and selenium) were present in the soil. The area was then designated for further testing.

Soil and groundwater tests determined that the contaminants present in soils at DSERTS 72 are not migrating to groundwater and do not pose a threat to groundwater quality. A risk assessment concluded that the contaminants at DSERTS 72 do not pose an unacceptable risk to human health, assuming that the area continues to be used for industrial purposes.

Follow-up sampling in the location of the storm drain did not detect any chemical contaminants in site soils or groundwater. It is believed that most of the soil volume affected by the chemicals was removed during excavation and construction activities.

Evaluation and Selection of Preferred Alternative

The original ROD did not contain remedial objectives for DSERTS 72, since this site was discovered after the original ROD was signed.

The ROD Amendment selects institutional controls as the appropriate remedy at DSERTS 72. Institutional controls consisting of an aggregate cover, land use restrictions, and monitoring would be implemented in accordance with the Department of Defense's *Interim Policy on Land Use Controls Associated with Environmental Restoration Activities*.

The Land Use (institutional control) Alternative and a No Action Alternative were evaluated against the NCP criteria. The Land Use Control Alternative was found to meet these criteria. This alternative would prevent unacceptable risks to human health and protect the environment from contamination remaining at the site, ensure long-term protection of human health, and comply with appropriate regulations.

GLOSSARY OF TERMS

Administrative Record (AR) — The body of documents that forms the basis for the selection of a particular response at a site. Documents that are included are relevant documents that were relied upon in selecting the response action, as well as relevant documents that were considered but ultimately not used.

Applicable or Relevant and Appropriate Requirements (ARARs) — Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site.

Cleanup — Actions taken to deal with a release of contaminants that could affect human health and/or the environment. The term "cleanup" is sometimes used interchangeably with the terms remedial action, removal action, response action or corrective action.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) — A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). The act created a trust fund, known as Superfund, to investigate and clean up abandoned or uncontrolled hazardous waste sites. The act requires the Defense Logistics Agency to reach agreement with the EPA for remedial actions at DDJC-Tracy and to perform the remedial actions.

Contaminated/Contamination — The presence of chemicals in soil, water, and/or air, introduced by humans with the potential to pose risk to human health and the environment.

DTSC — Department of Toxic Substances Control, California Environmental Protection Agency

Federal Facilities Agreement — Agreement between the operating agency (site) and federal and state EPA on the schedule of cleanup activities, including preparation of work plans, reports, and remedial designs.

Groundwater — Water found beneath the earth's surface that fills pores between soil and gravel particles to the point of saturation. Groundwater often flows more slowly than surface water. Groundwater is the source of 80% of the United States' water supply.

Interim Remedial Measure (IRM) — An action which is designed to prevent immediate health or environmental risk by exposure to contaminated media. The IRM is usually followed by a permanent remediation system.

National Contingency Plan — A federal regulation that guides the Superfund program.

Operable Unit (OU) — A term used to describe a certain discrete portion (or management unit) of a CERCLA site.

PCBs — Polychlorinated biphenyls, which are industrial compounds banned by law in 1979.

Plume — A defined area, below the ground surface, where contaminated groundwater exists.

Proposed Plan — The public participation requirement of CERCLA which summarizes the preferred cleanup strategy, the rationale for the preference, alternatives presented, and any proposed waivers to cleanup standards.

Receptor — A human, animal, or plant that comes in contact with contaminated soil, sediment, air, and/or water.

Record of Decision (ROD) — A public document describing which cleanup alternative(s) will be implemented at a CERCLA site. The ROD is based on information and technical analyses generated during the RI/FS and incorporates public comments and community concerns.

Remedial Investigation/Feasibility Study (RI/FS) — A two-part study of a hazardous waste site that supports the selection of a remedial action for the site. The RI identifies the type and extent of contamination. The FS identifies and evaluates alternatives for addressing site contamination, based on the results of the RI.

Remedial/Remediation — An action which will rehabilitate contaminated media (such as groundwater) to the appropriate levels, as defined by EPA and the State of California.

Risk Assessment — The qualitative and quantitative evaluation performed as part of the remedial investigation in an effort to define the potential risk posed to public health and the environment.

RWQCB — Regional Water Quality Control Board, a regional office of the California Water Quality Control Board.

SARA — See CERCLA.

Solid Waste Management Unit (SWMU) — An area or building at a facility from which hazardous materials may have migrated.

Superfund — See CERCLA.

U.S. Environmental Protection Agency (EPA) — Federal agency charged with implementing CERCLA/SARA and other federal environmental regulations.

Volatile Organic Compounds (VOCs) — Organic compounds (for example, solvents) that vaporize readily at room temperature.

DDJC-Tracy Environmental Cleanup Program Mailing List

If you or someone you know would like to be placed on a mailing list to receive further information about the DDJC-Tracy environmental cleanup program, please fill out and return this coupon to:

Defense Distribution Depot
San Joaquin California,
Tracy Site
Office of Command Affairs
Mr. Doug Imberi
P.O. Box 960001
Stockton, CA 95296-0002

Name: _____

Address: _____

_____

City/State/Zip Code: _____

FOR FURTHER INFORMATION

For the convenience of members of the public who wish to review the Administrative Record and documents pertaining to the cleanup activities at DDJC-Tracy, an Information Repository has been established at the following location:

Defense Distribution Depot San Joaquin California
Environmental Program Office
25600 S. Chrisman Road
Tracy, CA 95376
(209) 839-4129

Hours of Operation:
7am - 3 pm
Monday - Friday

DLA encourages the public to visit the Information Repository and to become more knowledgeable about the environmental studies at DDJC-Tracy.

Public involvement contributes to sound decisions that better protect public health and the environment.
If you would like to comment, or if you require additional information about DDJC-Tracy's environmental cleanup process, contact the Office of Command Affairs at DDJC-Tracy or the other resources listed below:

Defense Distribution Depot San Joaquin:
Mr. Doug Imberi
Office of Command Affairs
P.O. Box 960001, Stockton, CA 95207-9602
(209) 839-4009

Mr. John Guzman
Environmental Program Manager
P.O. Box 960001, Stockton, CA 95256-0002
(209) 839-4129

U.S. Environmental Protection Agency:
Mr. Michael Work
Remedial Project Manager (H-9-1)
75 Hawthorne Street, San Francisco, CA 94105-3901
(415) 972-3024

State of California Dept. of Toxic Substances Control
Site Mitigation Unit, Region 1:
Mr. Peter MacNicholl
8800 Cal Center Drive, 2nd Floor
Sacramento, CA 95826-3200
(916) 255-3713

State of California
Regional Water Quality
Control Board:
Mr. Marcus Pierce
Central Valley Region
3443 Routier Road
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95823-3098
(916) 255-3233

Defense Distribution Depot
San Joaquin California, Tracy Site
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P.O. Box 960001
Stockton, CA 95296-0002

ENCLOSED:
IMPORTANT INFORMATION
ABOUT THE ENVIRONMENT
AND YOUR COMMUNITY